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## Executive Summaries

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### Understanding the Relationship between Product Specifications and Coordination in Agri-business Supply Chains: an Examination of the New Zealand Meat Industry

*Altair Dias de Moura, Diane Mollenkopf and Sandra Martin*

The demand for tighter product specifications and more integrated agricultural chains are two noticeable phenomena in the agribusiness sector. However, the relationship between these two events is still not clear. The purpose of this paper is to explore the relationship between product specifications and supply chain structure, with particular emphasis on whether tighter product specifications can be associated with more integrated agribusiness chains. The framework developed for this study joins two continua for purposes of analysis. The product specification continuum ranges from “loose” product specifications on one end, to “tight” product specifications on the other. To assess the level of integration, the inter-firm relationships continuum ranges from the “Discrete” pole to a “Relational” pole, which is further extended to include Vertical Integration by ownership.

The logic behind the framework takes into account the fact that a firm reaches its customer’s product specifications by managing its business processes as well as by influencing the business processes of its suppliers through the relationships that it develops with them. Thus, characteristics of the business processes, such as interdependence of processes and shared assets at the firm-supplier interface are among the factors affecting these relationships. Considering the study focus on chain co-ordination, the framework was applied at different firm-supplier interfaces along a chain, making it possible to identify important chain level issues.

A multiple case study methodology was adopted to address the research objective. Five chains were explored inside the New Zealand domestic fresh meat market. In-depth interviews were performed with staff of the main firms comprising each chain. Two pork, one chicken, one beef and one sheep meat chain were studied.

After exploring all chains, the status of customer product specifications status for each one was evaluated and their relative positions were plotted on the

product specification continuum. The assessment of the chain co-ordination level involved firstly the assessment of the type and number of inter-firm relationships found along each chain. Chains comprised of more close relationships (Relational Relationships and Vertical Integration) were ranked as having a higher degree of co-ordination.

The results revealed that some chains that delivered products with tight specifications had low levels of co-ordination. This shows that the delivery of tight product specifications is not necessarily associated with the need for highly co-ordinated chains.

Taking into account the pressures on the agribusiness sector to improve quality, safety and diversity of food products, the research findings suggest that increasing chain coordination is not necessarily a natural trend for chains that intend to deliver tight product specifications. In some cases this may occur, but in others, the industry features, such as industry support and presence of open markets may mean that parts of the chains do not need to be so tightly coordinated.

## **Foreign Direct Investment and the Brazilian Food Industry in 90s**

*Elizabeth Maria Mercier Querido Farina and Cláudia Assunção dos Santos Viegas*

The paper explores the reasons and mechanisms of entry of multinationals in the Brazilian food industry, the impacts on the local industry and on the consumer market. Foreign direct investment (FDI) has played a major role in the recent economic development of Brazil and Latin American Countries. Since the mid nineties, FDI has spurt and many multinationals in the food system picked Brazil as headquarters for their investments in Mercosur (The Southern Common Market). Therefore, the comprehension of FDI is a necessary condition to understand the dynamic of the Brazilian food and agribusiness system and its potential to attend internal and external demands.

The theoretical approach developed by John Dunning (1995a), called OLI theory was the main guide in discussing the reasons and entry strategies of the multinational companies. That is, FDI was explained by three factors: competitive advantages of the multinational Organization, Localization endowments of the host country and appropriation of competitive advantage by Internalization. The empirical analysis was mainly based on secondary data. The paper starts showing the importance of FDI in the Brazilian economy as a whole and in the food industry.

The OLI factors are then discussed in the empirical context, showing that they were present in the Brazilian agribusiness environment during the 90's: a) exceptional local endowments related to the agricultural production and potential to expand, attractive internal market and especial position to be a platform to Mercosur and South American exports; b) the advantages of

multinational organizations over Brazilian uni-national firms; c) advantages of producing in Brazil in order to explore the organization characteristics.

After showing that Brazil is the leader in attracting foreign direct investment to Latin America, the paper discusses in greater detail mergers and acquisitions, the predominant entry strategy. M&A helps to overcome any brand name barrier in the new market, increases the knowledge of local consumption habits and commercial practices and guarantees high market share.

The Brazilian food market is analyzed as the main attraction of direct foreign investments. Changes in consumption habits, given the economic stability and the size of the national market were the main factors that placed the country in the forefront of the strategies of agro-food multinationals. The paper, then, investigates the impacts of these investment flows on the Brazilian industry. The main variables studied are connected to the competitive environment and new competition strategies.

The paper shows that there were major transformations in the Brazilian food industry, but it is not possible to isolate the consequences of FDI from other causes such as trade liberalization, deregulation and stabilization that spurred competition pressures. Despite a huge M&A wave, the food real prices slumped, the variety of products increased, and there was a strong growth of productivity in the food processing industry.

The main implication to agribusiness management is that the entry of foreign capital, through mergers and acquisitions, has changed significantly the patterns of competition in the Brazilian food sector, guaranteeing greater dynamism and competitiveness. Higher concentration, compared to US food industry, does not guarantee high economic profits. On the contrary, Brazilian has had a strong competition among the few and this competition in product and prices has improved competitiveness to explore international markets.

## **The internationalization determinants of the small agro-food firms:**

### **Hypotheses and statistical tests**

*Mourad K. Ayouz and Hervé Remaud*

The question we raise in this paper aims at analyzing and explaining the connection, in the case of the small agro-food firm, between the act of exporting and the manager's perception of high quality competition as for the products manufactured. Stretching the study a little further, we sought to establish the factors accounting for these two supposedly positively connected variables. A lot of authors having taken an interest in the internationalization of these firms' business are largely devoted to the connections linking the size of the firm to export ratio (Calof, 1993; Zou & Stan, 1998; Wolff & Pett, 2000). The more important hypothesis we tested is directly related to the proposals of Bonaccorsi (1992): "*International competitiveness of small firms is much more based on general competitive factors such as product quality, rather than on explicit marketing strategies and policies*".

The database used in this study is based on Small Agro-Food Firms from Languedoc-Roussillon region (France) with payrolls ranging from 6 to 55 (fixed term + full time over one year). After removing the missing values, our database was actually based on 335 observations (empirical work is based on this number of observations). The empirical work consisted in estimating a modified version of a bivariate probit model and hypotheses tests. The econometrical model put forward in this paper generalizes the bivariate probit to the case of ordered polytomic endogenous variables. Indeed, unlike the simple bivariate probit which only contains two binary variables (Green, 1997), the ordered polytomic bivariate probit shown in this work includes a binary variable (decision to export) and an ordered discrete variable (competitiveness levels).

Being an exporter with strong perceived quality competitiveness would appear to be negatively related. The variables which have a negative effect on the decision to export have a positive effect on the evaluation of competitiveness and vice-versa. Whether the firm exports or not, quality competitiveness plays a major part. The older the manager of the firm, the more the SAFF is perceived as competitive, yet the less it exports. Educational background has a positive effect on the probability of exporting. Young firms are more likely to be exporters but assessment as to the level of quality competitiveness is not affected by the life of the firm. Entrepreneurial SAFF managers have a low level of quality competitiveness and stand a higher chance of exporting. SAFF managers who foresee the advent of new competitors on the market are inclined to be greater exporters and have a high perception of the level of quality competitiveness. Independent firms are great exporters and report a low level of quality competitiveness.

The statistical model presented show that a negative connection is observed between the high perceived quality competitiveness and the fact that a firm export. But, we know that small agro-food firms whose exports exceed 25% of their turnover tend to specialize in *terroir* products. In the case of small agro-food firms whose exports are between 1 and 25%, price is considered as a more determining factor. For the small agro-food firms, the *terroir* products seem to be a passport to export.

## Consumer Perception on Alternative Poultry

*Tatiana Farina, Sílvia de Almeida*

In recent years consumer groups have brought much more attention to food safety, including concerns about health, the impact of production techniques on the environment, on labor and on animal welfare. Sustainability has become the key word in discussions of economic development. Despite low average income, Brazilian consumers are increasingly concerned with those topics, and are willing to pay premium prices for “natural food” that is supposed to be free from chemical products, hormones and other sources of contamination.

This paper is an exploratory study and focuses on the “natural poultry” market in Brazil. Poultry was chosen for there is an increasing concern among consumers related to the use of hormones and antibiotics in the production process. Two types of alternative poultry were analyzed: “drug-free” chicken and “farm” chicken. The reason why organic was not considered is that there is no commercialization of this type of chicken in Brazil, even though people believe that there is great potential demand.

This paper reports the results of a research on “alternative poultry” consumer preferences. Primary data was collected through 100 questionnaires applied to a sample of consumers in an organic products free market organized by the Association of Organic Agriculture. The Conjoint Analysis was used to elicit consumer’s preference for alternative poultry.

The product attributes studied include type (drug-free or farm), price, brand and certification. Consumers were asked to rate 10 different cards based on differing levels of the four product attributes. There was also a twelve-question questionnaire about the reasons why the consumers had chosen to consume an alternative product.

In spite of the main role that certification plays in the market of differentiated products, the Conjoint Analysis showed that consumers still rely more on brand names than on certification. The variable price had the third relative factor importance score. Surprisingly the “differentiation attribute” (drug-free or farmer) had the last relative factor importance! The consumers do not care about choosing the “drug-free” or the “farm” type, yet they do care about not consuming the conventional poultry.

These consumers do not have enough information about the product that they are consuming. Through the questionnaire, it was possible to realize that they cannot differentiate the “drug-free” and “farm” production process from the organic one. Many interviewed answered that “drug-free” and “farmer” chickens are organic. The reason why that happens is that the patterns are not observable; they are process and not product patterns. This requires a strong certification system, and the consumers are definitely willing to pay for that.

The recent demands of Mc Donald’s Corp. towards the meat industry shows the increasingly importance of the issue of overuse of antibiotics in animal production. Therefore, because of public health concerns, the alternative poultry is likely to become the standard in the near future.

## **Technological Fields and Concentration of Innovation Among Food and Beverage Multinationals**

*Oscar Alfranca, Ruth Rama and Nicholas von Tunzelmann*

The paper explores the patenting-mix of the world’s largest food and beverage multinationals (FBMs) to understand whether their R&D activities in non-core

technology respond only to demand-side stimuli, or are also strategically oriented. Within the top group of FBMs, it also analyses the level of concentration of innovation in a variety of technological fields, such as Biotechnology, Chemicals, Instruments, etc. The analysis of flows of knowledge within the largest FBMs, and their possible strategic value, is important because such firms, which account for more than half the world's food and drink patents, determine the rhythm and direction of innovation in this industry.

Analyzing a sample of 18,611 patents granted in the US over 1969-1994, we use bivariate correlations to study the statistical association between patenting in food technology and in ten non-core technological fields in a sample of 90 large FBMs. We analyze groups of FBMs pertaining to different areas (North America, Europe and Japan) to identify recurrent association among such variables. We calculate Herfindahl indices to study the dissemination of knowledge in different technological fields among the sample companies.

Whatever the home-country, patenting in Food is always positively associated with patenting in Biotech, Chemistry, Machinery and Other fields, e.g. paper. Though the strength of the associations vary by home-country, linkages between Food and Chemistry and between Food and Other are the stronger in all groups. The fields where innovation is more widely spread among a great deal of companies are those in core technology, i.e. Food and Agriculture, Machinery and Other. The fields where innovation, by contrast, is more concentrated among a few companies are (in decreasing order): Tobacco, Drugs and Chemistry. Biotechnology, Packaging and Refrigeration are in an intermediate situation.

The FBM innovates in non-core technology not only for demand-side reasons, as usually held, but also because most of such R&D activities are related to the food-chain and play a strategic role in the company. An FBM could differ from most other F&B companies not only because it is more innovative, as is commonly held, but also because of its varied yet cohesive technological endowment. The simultaneous development of different technical capabilities within the FBM could be very difficult to replicate by its rivals and represent an under-analyzed barrier to entry in the food and drink industry.

## **Impact of Information on the Demand for Credence Characteristics**

*Terhi Latvala and Jukka Kola*

Consumers' increasing concern towards the issues of food safety and quality has increased the demand for quality attributes. Yet, most quality properties of food products can be considered as credence characteristics, quality of which cannot be inferred before the purchase, and sometimes not even after the purchase. Our research objectives are: (1) to assess how much Finnish consumers are willing to pay (WTP) for beef products, of which e.g. origins and production practices are known, especially with regard to safety issues; (2) to

compare the applicability, reliability, and efficiency of safety information provided by either private companies or public institutions, and (3) to explore the possibility of the so-called information paradox: is more information always better - or more beneficial - information?

Consequently, the aim of this study is to evaluate both qualitatively and quantitatively the value of new information about and the information systems set for credence characteristics of beef. Economics of information is employed as the theoretical framework. The quantitative approach focuses to measure the ex ante value of credence characteristics, and the method of contingent valuation is applied for this purpose. The main survey was conducted with the aid of the GallupKanava panel, which is a system in which answers and information is collected via personal computers. The total of usable questionnaires were 1,640.

Our research results show that 59 % of Finnish consumers are willing to pay more to get improved, more comprehensive information about safety and quality of beef products. Zero-WTP (41 %) for additional information exists mainly because consumers feel that the present labels guarantee the safety and quality already well enough. Consumers are most concerned with diseases caused by food of animal origin, and they regard public authorities and policies as the most reliable source of the information concerning safety and quality of food products.

In more general terms we can conclude that in the future the demand for better information of all quality attributes of food products will be satisfied to a growing extent by electronic data bases and other electronic business means of modern information technology. This creates a new possibility to develop local, high quality and very safe products for certain, selected consumer segments.

## **Agribusiness Management of Exchange Rate Risk**

*Dennis Conley, Olivier Le Boulanger*

Many economists view exchange rates as a critical component in the trading relationship between countries. Since quasi-floating exchange rates began in the early 1970's, firms wishing to trade must frequently monitor exchange rates for use in price, cost and valuation decisions. Exchange rate variability generates risk that should be accounted for and managed. The severe devaluation of one currency relative to others creates special adjustment problems.

The purpose of this study was to document actual attitudes about exchange rates and their risks, and the behavior of agribusiness managers in coping with those risks. Case studies of four different size and types of agribusinesses were developed based on interviews with executives from each firm. The sharp devaluation of the Mexican peso in December 1994 provided a unique opportunity to study how the four agribusinesses, which trade with Mexico, managed exchange rates. The findings give insights on the relative importance

of exchange rate risks compared to the many other risks confronting an agribusiness.

The devaluation had almost no real negative consequences for the agribusinesses and their strategic decisions. The smaller ones were only dealing in U.S. dollars and obtained government credit to guarantee the payment of the sales. Only the biggest one would eventually take pesos for payment, but would immediately hedge it on the foreign exchange market. The strategic decisions of these firms concerning the Mexican market remained almost unchanged despite the devaluation.