

FROM IMPORT DEPENDENCY TO EXPORT ORIENTATION: THE CASE OF THE CHILEAN DAIRY SECTOR

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I. INTRODUCTION

During recent decades, the Chilean dairy sector experienced a far reaching process of modernization and rationalization. Between 1974 and 2005, Chile went from being completely dependent on imports of dairy products to a net exporter. The composition of the supply of dairy products also changed as new state of the art technologies were introduced and the product basket changed from low to medium quality, value added products.¹

In previous research about the causes behind the transformation of Chilean agriculture the main argument has been that domestic changes have been caused directly or indirectly by new state-market relations and neo-liberal policies.² Montero (1997) and Muchnick (1983) argued that the socio-economic institutions changed from a rent-seeking system to a schumpeterian entrepreneurial system that caused the emergence of new incentives in various productive sectors. A common feature of this discussion was that it highlighted internal policy changes as the driving force behind the success of Chilean agriculture. One of the few studies about the dairy sector (Dirven et al. 2001) insists that the transformation was caused by economic liberalization policies. My own research on the diffusion of innovations at farm level held that increased competition and international changes in the organization of food supply exerted a high innovation pressure on the sub-sectors that were favored by expanding global demand for Chilean products, such as fruit. This occurred while other subsectors were crowded out by the strong negative transformation pressure exerted by liberalization (Rytkönen 2004). This article discusses the transformation of the dairy sector during recent decades and argues that in order to understand the shift to export driven development of the dairy sector it is necessary to look at the impact of globalization. The questions asked are: (1) Why did the shift from an import dependency to an export

orientation of the Chilean dairy sector occur? and (2) How has trade changed over time? The fact that Chile has managed to go from import dependency to export orientation under asymmetric international market conditions and under highly distorted international prices makes it an interesting case to study.

II. THEORETICAL APPROACH

The globalization of agriculture has been highlighted through the new political economy of agriculture, a school of thought that focuses on agro-food globalization. This is a comprehensive and systemic approach that assumes that production and consumption of food takes place under a specific economic and geopolitical organisation of international agricultural and food relations, i. e. a Food Regime (Goodman and Watts 1997; Mc Michael 2005). The theoretical concepts developed by this school of thought are highly relevant for understanding changes at a global scale and the context within which changes took place in Chile.

Within the fields of economics and political science “economic globalization” has been highlighted from many different perspectives. In the field of international economics the concept of comparative advantage in combination with economic modelling has been a starting point. From an industrial perspective, Porter (1998) developed a comprehensive framework to understand competitive advantage of firms, countries of industries. Another insightful contribution was made by Krugman (1991) who combined spatial aspects with traditional economics to understand the emerging economic geography under globalization. In an attempt to develop a comprehensive model to understand globalization, Held et al. (1999) proposed the study of globalization through a combination of spatio-temporal and organizational dimensions. These authors and the new political economy of agriculture approach attempt to understand systemic changes. Porter (1998) focuses on different aspects of competition and changes in industrial organizations and Krugman (1991) highlights how intensive economic activities change from one place to the other and the food regime ideas focus on the distribution of power and economic outcomes at different levels in the productive system. Held et al. (1999) offer concrete tools to understand the impact of globalization through trade at a national, regional or global level. These parameters are 1) the extent and intensity of trade, 2) the infrastructure and institutionalization of trade, and 3) the stratification hierarchy of the globalization and its impact on the case studied. These three parameters will be used to answer the questions asked by this article. The first parameter will be examined by undertaking a

comparison between the development of exports and imports with the trade value trend over time. Different equations can be used to estimate trade value over time. In this case a more extensive regression model was not possible. Therefore the development of the amount and value of exports vs. imports has been estimated through a weighted Laspayre's index. The values used in the equation are the sum of total amount of all exported items classified as milk and dairy products, and the exported value in current USD for each product divided by the total value of imports and total amount of imports (see diagram 1). The data are based on Chilean export statistics and the quality of trade statistics is regarded as accurate. The second parameter will be estimated through an analysis of relevant supply side and demand side features. The third parameter will be addressed by analyzing the activities of global companies in the Chilean market.

III. THE EXTENT AND INTENSITY OF TRADE

The determinants of trade development

There are two global trends of importance for the determination of trade development of any country under globalization. The first is that the technological advantage of economically developed economies has gradually decreased *vis-à-vis* less developed economies and the second is that labour intensive production, especially of unskilled labour, has been relocated from industrialized countries to less developed ones (Chun Zhu 2007:378-382). These trends are highly relevant for dairy production and exports. Milk production at farm level worldwide has become increasingly standardized as a result of the diffusion and implementation of modern technologies for processing milk. This has been underpinned by the rapid pace of transnational corporation mergers, their increased rate of direct foreign investments (DFI) in Asia, Eastern Europe and Latin America (Dobson et al. 2002:4-19) and the implementation of new global governance strategies and cross boarder alliances that actively seek to enlarge market shares in emerging economies through rationalization and concentration (IDF 2005). DFI and other investments have thus increased in countries where a more efficient use of advanced technology is possible, and where factor prices³ and other conditions make investments in production particularly favourable.

Corporate strategies are constrained and countervailed by the inability of the WTO to impose the agreement to reduce trade barriers reached at the WTO/GATT Uruguay round. In any case, the reduction of

trade barriers would be partially illusory because the US and EU only managed to reduce export subsidies slightly, and reluctantly agreed to include dairy trade liberalization under the Uruguay and Doha round (Dobson et al. 2002:2). Jachnik (2006) identified four types of dairy market regulation models, the "highly regulating" model implemented in Canada, the United States and some European countries, the 'pseudo liberal' model such as the Dutch, New Zealander and Danish, the truly deregulated model like the Australian and British and a model dominated by informal production. All regulated countries, except for Australia and the UK exert a high impact on international prices, which makes it impossible for deregulated countries like Chile to compete equitably.

The development of trade

Chile has until recently been a net importer of milk and dairy products, therefore milk imports have had a crucial impact on farm gate prices, because the market has been deregulated. Chilean farms and firms have therefore been forced to compete with distorted world market prices.

Diagram 1. Development trend of trade 1975-2004

Real development trend of trade with dairy products 1961-2004, 1975=1 (Laspayre's index - value and amount of exports vs value and amount of imports)

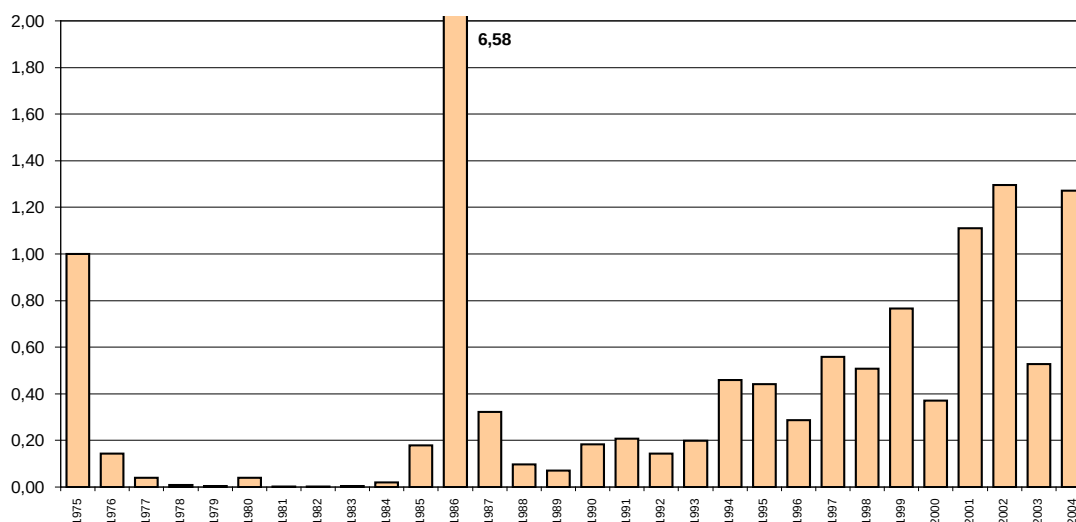
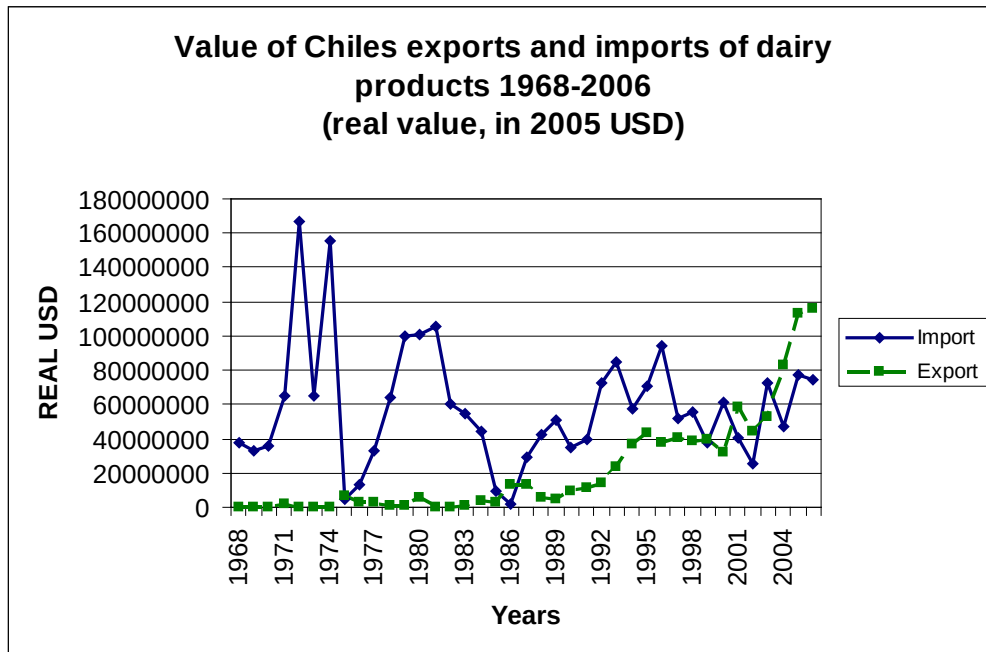


Diagram 2. Real value of exports and imports

Sources: Rytönen (2004) and Comtrade (2009).⁴

As we can see from the diagrams above, there is a sustained positive trend for trade with dairy products from 1990 and onwards (diagram 1). Even though Chile only recently became a net exporter (diagram 2), the long term trend shows that improvements have been going on for some years. One important explanation for this change is the transformation pressure emanating from the international market, which forces Chilean farms and firms to embark in technical development in order to remain competitive (Rytönen 2004:119-155). This is also consistent with developments in other parts of Latin America (Kouzmene 2003:37-38).

Another important explanation is that the composition of exports and imports has changed. While exports were quite small in the past and consisted mainly of milk powder, today these are composed of at least with 76.4 per cent by elaborated medium value-added products (such as condensed milk 40 per cent, gouda cheese 29.1 per cent, ice-cream 4.5 per cent, manjar (candy butter) 2.8 per cent and other 9.1 per cent). Milk powder amounts only to 14.5 per cent while the import of low value products add up to at least 60 per cent (made up of milk powder 34.8 per cent, whey 9.1 per cent and butter 3.7 per cent) (Fedeleche 2006).

During recent years, the reinforcement of the dairy cluster has contributed to persistent efforts to increase exports (Kouzmene 2003:37-38). But it is also the reflection of the global governance strategy of the transnational companies. The strategy defines the role of each country in each company's global strategy. For Chile, the aim is to produce medium

value products for exports to Mexico and other Latin American countries (Torres, interview 2007).

Development of trade and production between 2006 and 2010

Between 2006 and 2010, farm gate prices rose and fell dramatically in all countries. This started with an international increase in prices in 2006 (IDF 2007). Rising prices were followed by even sharper increases in prices for inputs. Between May 2007 and May 2008 farm gate prices in Chile increased by 10.6 per cent, while the price of Urea (the most common chemical fertilizer used) increased by 34.5 per cent and the price of maize by 42.9 per cent (Fedeleche 2008). Importantly though, when international prices started to fall in 2008, the price of inputs lagged behind and remained high for several months. Also farm gate prices followed the international market pattern when prices fell, but when the international recovery started in August 2009, Chilean prices lagged far behind. In November 2009 for example, the average international price was 195 Chilean pesos and the average in Chile was only around 148. In June 2010 prices, were still lower than the average international price, although they had recovered to a more normal level (Esnaóla 2010:10). Even though it seems that the worst part of the crisis has passed (Fedeleche 2010), it is too early to get an understanding of its full impact.

Chilean exports have surpassed imports since 2003, since then exports have steadily increased. In 2007, they totaled US \$173.3 million and in 2008 they were US \$226.4 million. However, in 2009 the value of exports decreased to US \$129.4 million (imports also decreased) and a comparison of the development between January 2009 and April 2010 indicates that the value of exports is still decreasing (Esnaóla 2010:23). Thus, it seems that the price/cost crisis probably in combination with the impact of the financial crisis in foreign markets is currently influencing Chilean exports negatively.

IV. THE INFRASTRUCTURE AND INSTITUTIONALIZATION OF TRADE

Supply side issues

Economic policy – Impact of liberalization

Researchers on Chilean agriculture have argued that liberalization has had a positive impact on agricultural production and exports. But for the dairy sector the regime shift from highly protected to highly liberalised market marked the start of a period of intensively negative transformation

pressure. The change of policy regime was concretized directly through diminishing price and border protection and subsidies, and more indirectly through general changes in economic policy (Rytönen 2004:129-132). The dairy sector was severely affected, because farms as well as industries in many parts of the country were generally ill-equipped to cope with foreign competition.

The immediate effect of liberalization was a steady increase of imports between 1975 and 1981, which can be primarily explained by the abrupt decrease in effective rates of protection falling from 161 per cent in 1974 to 12 per cent in 1979 (Edwards et al. 1998:Table 4) and the inability of the domestic industry to compete with subsidized international prices. Liberalization was supported by a 300 per cent depreciation of the exchange rate between 1973 and 1974, but this initial line was abandoned as inflation rose and the government decided to use the exchange rate to fight it. In 1979 the Chilean peso became fixed to the US dollar, which led to an appreciation of the peso which made Chilean products more expensive (Rytönen 2009:416).

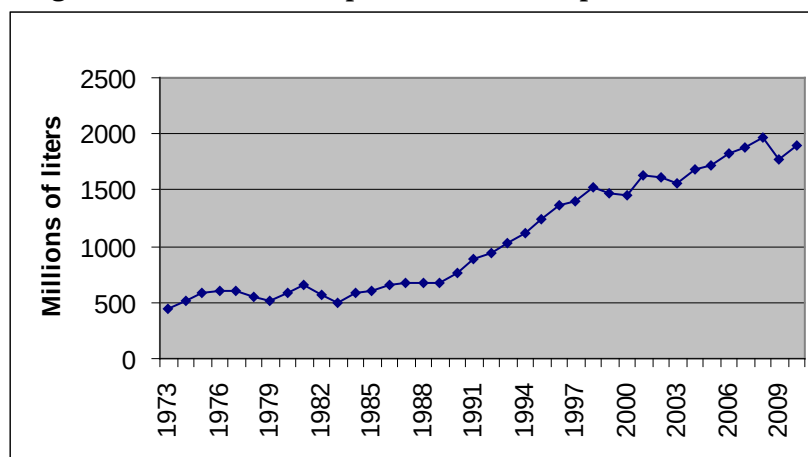
The severe effects caused by the appreciation of the peso, not only on the balance of payments, but also on the loss of competitive power led to an unprecedented economic crisis that was deepened even more by the currency devaluation. For the dairy sector, liberalization fueled a first wave of rationalization.

When the fixed exchange rate was abandoned in 1981, the sector was affected by the increased cost of existing loans and by the sharp decrease in GDP. The latter led to a drop in domestic consumption from 117 liters per capita in 1981 to 78 liters per capita in 1986. Between 1982 and 1988, temporary import restrictions and trade barriers were reinstated (Edwards et al. 1998:44-47) and imports dropped to almost nothing (see diagrams 1 and 2). The velocity by which liberalization was implemented and the negative pressure from general financial instability between 1979 and 1982 was so profound that the state had to develop a program for technical diffusion, credit support and subsidies to slow down the rate of structural rationalization because it threatened the survival of agriculture (Prado, interview 2000). As soon as the temporary trade barriers were abolished, imports started to increase again. One of the contributions of the temporary protection was its effect on the consolidation of the sector. Since 1990, the value of exports vs. imports has increased at a sustained rate. Liberalization policies led to increased imports and instability, this is not surprising since international dairy prices are highly distorted. It is important to note though that the positive changes concerning trade occurred long after liberalization was implemented.

The development of output

Until 1974, dairy production was carried out almost everywhere in the country. In 1976, 61 thousand farms declared that they had cows for combined milk and meat production and 70 per cent had fewer than ten animals. In 2005, the total number of dairy farms was estimated at 16 thousand with over 60 per cent of all milk being produced in the Los Lagos Region. Productive systems had changed from extensive mixed production (meat and milk) to specialized, large scale production, based on a mixture of grazing and supplemental feeding (Fonterra 2005).

Diagram 1. Total milk reception in industrial plants 1973-2010



Sources: Rytkönen (2004:126) and Odepa (1999, 2002, 2006, 2008 and 2010)

The diagram above shows that production has steadily increased since 1985, but during an entire decade of liberalization there were no improvements. In 1982, there was an acute shortage of milk to the point that the industry was severely threatened (Carrasco, interview 2000). At least four crucial events have been responsible for creating a qualitative improvement of productivity and output. *The first* was the temporary re-establishment of price-bands for dairy products in 1982 (DEP 1989:351) and a large-scale technology transfer model was launched to support big and middle sized farms (DEP 1989:284; Rytkönen 2004:140-142), combined with increasing farm gate prices owing to the milk shortage between 1983 and 1989 (Gemines 2000:51). *The second* was the start of milk collection centers in 1983 and their diffusion over the years as a means to capture milk from micro farms⁵. Since 1991, these centers have received vast financial and technical support from the state. *The third* was the implementation of new technologies and new price schemes by the industry. In 1994, Fonterra (then the New Zealand Dairy Board, NZDB) bought the majority of shares of Soprole (see table 1). The first measure

adopted by the NZDB was to stop daily milk deliveries from 4,600 farmers, the introduction of new state of the art technologies at industrial level and the implementation of new payment schemes that were soon followed by other companies (Dirven et al. 2001:308). The purpose of the new payment schemes was to increase the protein contents of raw milk, decrease the occurrence of bacteria and to level the amount produced during the summer, when production naturally increases and during the winter, when production naturally decreases, through dispersion of calf births all year around (Engler et al. 2003:416-427). The increase of protein and decrease of bacteria were advanced by the implementation of Ultra High Temperature (UHT) technology and the production of ultra fresh products, because both require milk of a higher quality to yield a good taste and maintain durability. *The fourth* is the role played by the Faculty of Agronomic Sciences at *Universidad Austral* in the Los Lagos Region in promoting new technologies, improving farm management (pasture management, administration, development of specially designed computer systems for dairy farms, etc) and promoting knowledge. The impact of the faculty as the centre of knowledge in the dairy sector was measured in a study conducted in 1997 which showed that farms closest to the university were the most successful and best equipped to meet changes (Facultad de Ciencias Agrarias 1997). The interaction with farms and (to some degree industrial plants) is an integrated part of the educational programs in Agronomic Sciences therefore new knowledge is spread through the usage of the farms and industrial plants as a classroom. The faculty members also contribute through research that constantly addresses existing problems in the sector. An important recent tool developed by this research is a comprehensive and holistic method to improve farm management systems that addresses productivity, quality and better usage of resources (Lerdón et al. 2005 and 2006).

Liberalization left two lasting positive effects, a geographic concentration of dairy production to the Los Lagos province, where more than 70 per cent of all milk is produced today (ODEPA 2006) thereby improving economies of scale at the industrial level and a shift from state legislated prices to market set prices.

Thus, increases in output and productivity were caused by rising prices, temporary protection and technical support during the 1980s, by the implementation of new price schemes during the 1990s and the diffusion of knowledge that contributed to improved farm systems.

Trade agreements

The government has, during the last decade, supported the development of the dairy sector through the negotiation and signing of several preferential trade agreements. Exports of milk powder to Bolivia are duty free, while a tariff of six per cent is placed on other dairy products. All dairy trade within the *Mercado Común del Sur* (Mercosur) region is duty free. All dairy products exports to Canada, Mexico, Costa Rica, Venezuela and Ecuador have tariffs of only six per cent. In 2002, Chile signed trade agreements with the United States within the framework of the Free Trade of the Americas. This agreement means a gradual decrease of tariffs from 5.25 per cent in 2004, to zero in 2011 for milk powder and condensed milk and as well as an abolition of tariffs in 2006 on butter and cheese (ODEPA 2006). In addition, a free trade agreement was signed with Korea and an agreement stipulating a gradual decrease to zero tariffs was also signed with the “Pacific Four”, that is, New Zealand, Singapore and Brunei, with Chile as the fourth partner (DNRE 2008), as well as with China, Japan and India (Fonterra 2005).

In March 2002, the government gave *Fundación Chile* the assignment of elaborating a proposal to remove the institutional obstacles to dairy exports. This resulted in an agreement between the private sector and the state, with the goal of achieving exports of US \$100 million in 2005 (and up to US \$500 million no later than 2010). The main purpose of the alliance is to support the use of the export space within current free trade agreements between the United States and the European Union (Agrogestión 2007).

Transport costs and infrastructure

The expansion of agricultural exports during the 1980s was supported by the government through improving the infrastructure and increasing the port capacity. The main ports used for dairy exports are San Vicente/Talcahuano and Lirquén located in the south and Valparaíso and San Antonio in the central regions (ODEPA 2007). San Antonio and Valparaíso have been modernized and adjusted for exports of agricultural products with refrigerated store rooms, refrigeration container services, improved container management and expansion of handling capacity especially for fresh produce (Port of Valparaíso 2007). These improvements have also had a positive spillover to other sectors, such as the dairy industry. International prices for dry cargo freight have a strong seasonal variation increasing between October and March and decreasing between May and September. Recent years show a slight upward price pressure.

Exports of low value products such as milk powder follow the seasonal variation of production with export volumes seemingly higher during spring and summer, however exports of cheese and condensed milk are high even during the winter, when freight prices were lower (ODEPA 2007).

Demand side issues

The role of domestic demand

Structural tension due to changes in consumption patterns has always remained weak. Income elasticity of dairy products seems to be high and consumption of dairy products has declined during every period of economic crisis. Subsequently, consumption has dropped during periods of economic instability and falling real income, such as between 1982 and 1987 when consumption reached its lowest level (77 liters per capita) and increased during periods of accelerating growth, such as in 1999 when consumption was 133 liters per capita (Gemines 2000:54; Faiguenbaum et al. 2002). The average yearly consumption of 125 liters per capita and a retail value of US \$770 million per year (Fonterra 2005) has been considered as too low to fuel sustained growth within the business. In 2005, consumption per capita was estimated at 120 liters per capita (INE 2006:45), which in an international perspective is quite low (IDF 2008).

The role of Supermarkets

Another source of global transformation pressure is the emergence of transnational supermarket chains, which is something new that is altering the power relations and structure of food production in general. In Chile, supermarkets accounted for 50 per cent of all food sales in 2000 (Reardon et al. 2002:374) and in 2002, this had increased to 66 per cent (Faiguenbaum 2002:459-471) and the lion share being dairy products sold through super-market chains. Supermarkets demand a high level of service from their suppliers, including payment of fees for displaying the products, promotional activities, the cost for unpacking the products. They also demand entrance fees to each new store joining the chain (Rytönen 2004:127) and payments of suppliers invoices might take up to 90 days. An important connotation is that most supermarket chains in Chile are owned by national capital and their market position is completely dominating.⁶ The lion's share of sales is done through supermarket chains and it is quite a sensitive matter to ask questions of supermarkets in Chile about the level of demand.⁷ Supermarkets superior bargaining power in their dealings with dairy companies results in an increased necessity to cut costs and become

more efficient both in Chile, and in many of the countries to which Chilean dairy products are exported. At the same time dairy companies have been advantaged in their relations with supermarkets by being able to reach a larger part of the population, with a large part of their assortment at a lower distribution cost (Faiguenbaum et al. 2002:459-471). The pressure from supermarkets also provides incentives to open new markets, either through geographic expansion or through technological development and the introduction of new products.

Market regulations regarding dairy products

The overriding rules regarding dairy products are found in the Codex Alimentarius that grasps food standards, guidelines and codes of practice under the Joint FAO/WHO Food Standards Programme (Codex Alimentarius 2007). Some of the most relevant regulations for Chile are the rules implemented by the trading partners, for example the Mexican dairy import rules (SAGARPA 2007) and the Mercosur rules for the dairy sector (*Normativa Mercosur del Sector Lacteo*). Sanitary rules are not currently a problem for Chilean based industries and at farm level problems are addressed through the implementation of price schemes that include severe penalties for high bacteria level and low protein content. What does present a problem for Chilean exports is that in spite of the implementation of the WTO's Agreement on Agriculture (AoA), almost all economic policies for example in Canada, the United States, Japan and EU, still involve trade distortion, either through tariffs, price subsidies or by financing stocks (Meilke et al. 2001:134-136; Blayney et al. 2005). A case in point is that currently the EU finances stocks created by overproduction, as well as export subsidies (Jordbruksverket 2009).

V. MAJOR DAIRY SECTOR COMPANIES AND THEIR IMPACT ON CHILE

Since the Second World War, strong regulatory agricultural policies have been developed in industrialized countries (Friedmann 1982:248-286). The implementation of market regulations led to the emergence of dairy surplus production and a highly distorted market. The dairy sector was characterized by the predominance of a strong forward integrating cooperative sector intimately connected to state interests in most countries. The existing international companies were organized through subsidiaries, honed to work in specific national markets. The possibility of being able to afford state of the art technologies limited the expansion of most companies/cooperatives and the costs of transport limited transnational

activities. Today, state of the art technologies have become more affordable, the educational level in most countries has increased and made the assimilation of new technologies easier, international transports are much faster and less expensive and the demand for dairy products is higher in emerging economies and stagnating in OECD countries (IDF 2001). The changing conditions fueled a far reaching structural transformation process, through a consolidation process expressed by an accelerating rate of mergers and takeovers resulting in the dramatic concentration of production and trade in the hands of a few, very large transnational companies. In production lines, dairy companies are moving towards mass production of standardized food with a strong downward pressure on prices, niche production of high-tech health food and the production of traditional artisan goods (USDA 2007). Globally companies broadened their product portfolios, strategic alliances have become common and the rate of mergers rose considerably (Dobson et al. 2002:4-19; Rytönen 2004:135-148).

In the case of Chile these changes are best illustrated by the increasing market domination of large corporations. In 1970 the Chilean market was dominated by 22 farmer owned cooperatives. In 1997, large corporations received 88.4 per cent of the total milk delivered to industries (Rytönen 2004:123). During the second half of the 1980's, Fonterra (then NZDB) positioned itself as the international price leader after the New Zealand's economy became liberalized. In 1994, Fonterra owned 56.85 per cent of Soprole, one of the largest companies in Chile. Other dominating companies are Nestlé, the world's leading food company and Colun, a joint stock company, owned by farmers, industrialists and bankers (Rytönen 2004:135). Loncoleche is owned by Watts, a national conglomerate in the food business (Watts 2007) and Vialat/Danone by a French transnational company. Surlat is a Spanish-Chilean joint venture (Surlat 2007). All of these companies are quite large and they all implement global or regional sourcing strategies. These strategies are highly influenced by the emergence of powerful customers and changes in dairy politics (Dobson et al. 2002:21).

Fonterra defined a strategy of world leadership in the dairy sector as early as the 1980's through acquisitions and joint ventures with companies in other countries. Fonterra's profit target was a 15 per cent minimum return on the total gross assets and an annual growth of 15 per cent in revenues (Dobson et al. 2002:4-5). It implements a strategy that aims at market dominance in food through the establishment of subsidiaries in all continents. Nestlé has been more restrictive on the number of partnerships and the economic goal is to achieve four percent per year real internal growth (Dobson et al. 2002:6-7). Nestlé also commits itself to a policy of

continuous improvement and cost cutting, which is reflected in their relationship with farmers. They focus on the long-run balance of sales between low-risk and low-growth operations world wide.

Fonterra and Nestlé entered a strategic alliance in 2002 called Dairy Partners Americas (DPA). The DPA coordinates operations, ensures access to raw materials and decreases the degree of competition. The mere size of DPA strengthens the market position of the partners vis-à-vis competitors and powerful agents such as supermarket chains. The alliance has been implemented through joint ventures in many countries. In Chile the agreement was reached during 2009. The fear amongst Chilean farmers was quite massive in 2002 when it became known that the alliance would start operations in Argentina. Many voices, mainly from farmers' representatives were raised against it because of the fear that Chile would become flooded with Argentinean goods, especially as the Mercosur agreement abolished import taxes between Chile and Argentina. But this fear was unfounded. After the Argentinean and Brazilian financial crisis in 2002, the same companies changed the geographical focus of exports from Argentina to markets in Asia, the Middle East and Africa, while they increased their exports from Chile to the rest of Latin America (Rytkönen 2009:419).

Table 1. Dairy industries in Chile 2006-2010

Company	Milk reception in millions of 2006	Milk reception in millions of liters 2009	Share of national market 2006	National/transnational	Share of exports 2007	Share of exports 2010 Jan- Apr
Soprole/Prolesur	436,9	453,4	24.02	TNC	18.9	10.1
Colun	365	371,1	20.07		14	11.4
Nestlé	350,4	347,1	19.27	TNC	40.4	49.9
Loncoleche (Watts S.A.)	224,6	205	12.35		3.6	7.1
L. Nupulmo	110,4	114,3	6.07		5.6	
Surlat	100,9	156	5.55	TNC	n.a.	7.2
Vialat/Danone	93,4	47,2	n.a.	TNC	n.a.	
L. Frutillar	43,6	9,5	2.4		n.a.	
Quillalles-Peterca	35,5	36,4	1.95		n.a.	
A. Cuinca	29,1	13,1	1.6		n.a.	
Chilolac	13,6	7,6	0.75	Cooperative	n.a.	
Vitalac SA	4,5		0.25		n.a.	n.a.
L. Puerto Varas	n.a.	11,9	n.a.		n.a.	0.2
Unilever	n.a.		n.a.	TNC	n.a.	3.0
Com J Meyer B	n.a.		n.a.		n.a.	4.7
Lacteos del Sur	n.a.		n.a.		n.a.	2.4
Others	14,7		5.71		17.5*	4.0
Total	1818,1	1772,6	100		100	100

Source: Odepa, Informe lacteo (2006 and 2008), Esnaóla Lewis (2010)

*Companies above are part of this category, but are not specified.

Colun, the second largest company, started its export ventures in 1992 and has specialized in exports of cheese, caramelized milk and sweet whey powder. As can be seen in table 1 above, exports are dominated by the largest companies. David Torres, a Nestlé executive in Mexico, explained that milk supply is coordinated to cover the demand in the entire hemisphere (Torres, interview 2007). This kind of sourcing strategy is also common for all other transnational companies (Villacaña, interview 2007). It is too early to draw any conclusions on the changes in exports by Nestlé and Soprole between 2009 and 2010, but if they persist it is likely that the reduction of Soprole and advance of Nestlé is related to the implementation of the DPA.

VI. CONCLUSIONS

Returning to the questions asked in this article: Why did the shift from import dependency to export orientation of the Chilean dairy sector take place? What are the main causes behind this transformation?

The first parameter; *the extent and intensity of trade*, shows that the implementation of liberalization from 1974 and onwards led to a dramatic increase of imports while exports were virtually non existent. In 1989, the trend changed from negative to a sustained positive trend of the weighted value of exports vs. imports. The real value of exports surpassed imports in 2002. An important component behind the shift is a change in the export basket from low value commodities in the past, to medium value elaborated products in the present. This is combined with a dramatic increase in the amount of exports. The second parameter, *the infrastructure and institutionalization of trade*, was analyzed through a combination of supply and demand side issues relevant for trade. It was found that there is a structural break concerning the rise in output and productivity which was caused by rising prices between 1983 and 1989, the temporary establishment of price bands between 1983 and 1989, technical support since 1983, the insertion of micro farms to the market through the development of milk collection centers in 1983 and by the introduction of new technologies and new price schemes in 1994. Other relevant supply side initiatives beneficial for the dairy sector have been the signing of a large number of trade agreements and the development of export infrastructure, such as ports, intended for other agricultural exports, but advantageous for dairy exports. Domestic demand is weak and highly elastic, a surplus production therefore requires exports in order to remain profitable. The development of a strong supermarket sector leads to lower administration and distribution costs because a large part of the population

can be reached at lower costs. In addition, supermarkets are strong negotiators with high demands on their suppliers. Since 1989, the Chilean dairy sector has been completely liberalized and from that time the results reflect current global trends.

The analysis of the third parameter, *the stratification hierarchy of the globalization and its impact on the case studied*, shows that under the pressure of current globalization, the strategies adopted by transnational dairy corporations, such as Fonterra and Nestlé disclose a pronounced increase in the level of competition that leads to cross-border alliances, accelerating levels of concentration and technological innovations that allow for the implementation of global sourcing strategies. Transnational corporations dominate exports of dairy products. A key production task in Chile is to supplement production deficits in other Latin American countries, of which the most important example is Mexico. Finally, even though liberalization opened up for the possibility for potential exports, it is in the executive rooms in foreign countries of global dairy companies that the Chilean export venture has been decided on. What can we learn from the Chilean case? Liberalization is not enough, reforms to support trade and investments in infrastructure are essential, but equally important, the process of globalization forces TNCs to change their productive and distributive structure and thereby creates new spaces for emerging economies like the Chilean even in so distorted markets as the dairy market.

NOTES

¹ Dairy products are divided into three different groups, namely plain commodities, products of medium value and products of higher value. Commodities (standardized goods traded in large quantities) like whey powder or milk powder are traded in the commodity market by brokers at a daily set world market price and traded without a quality differentiation. With the exception of a period between 2006-2008, when the price of commodities increased, commodity prices are generally low. Medium quality and medium value products are elaborated products, for example cheese, condensed milk, yoghurts, dessert that require industrial processing and that might generate some negotiating space for producers. High quality/value added products such as high value cheeses with denomination of origin are quality differentiated products that are highly demanded by the market, that yield a high level of profits per unit and that offer the producer a negotiating space.

² See, for example, Echeñique and Gomez (1987); Silva (1992); Foster and Valdes (2006), and many others.

³ Labour, capital and land prices.

⁴ 1975 was selected as a base year, because it grasps the entire liberalization process. The abnormally high value for 1986 is not an error. In 1986 changes in economic policy caused an almost complete stop of imports (see under Impact of liberalization). Comparing the information from both diagrams it is possible to observe that there was no increase in exports that year.

⁵ A milk collection center is a cold tank jointly owned or rented by a large number of micro farms. The committee or group of farmers organize the collection milk from the farms to the tank from where the milk truck from the company can collect the milk. The first milk collection center was installed with financial support from Colun in 1983, but the rest of the industry followed with the installment with centers for collecting milk. During the 1980s, the industry rented or lent milk tanks to groups of dairy farmers. The phenomenon spread further during the 1990s as the government started supporting the installment of MCCs to help farmers become linked to the market (Rytönen 2004).

⁶ Chilean supermarket chains have a dominating position in the national market and belong to large financial groups. Chilean supermarket chains in general have become transnational as they established operations in many other Latin American countries.

⁷ During interviews with representatives of the industry I was asked to turn off the recorder when questions about this were asked.

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