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Skim Milk Powder Imports and the Role of CONASUPO

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INTRODUCTION

Skim milk powder (SMP) is the most important dairy input used in the milk processing industry. It enjoys the same characteristics as whole milk powder, but is cheaper and easier to store.

Nowadays, SMP has many uses within the food industry, but other inputs such as casein, whey powder, soybean protein, are strong substitutes. The reason for this is their lower relative prices, as well as consumer preference for low fat products.

Mexico is one of the largest importers of SMP after the Netherlands and Italy and the first importer of SMP in terms of its direct use for human consumption (most of the SMP imported by Mexico (approximately 70 per cent) is merely dehydrated and sold to the public in this form (García-Hernández, 1996).

In Mexico, SMP is bought and distributed by Compañía Nacional de Subsistencias Populares (CONASUPO) and Industrialized Milk CONASUPO (Leche Industrializada CONASUPO, namely, LICONSA). The former acquires SMP on the world market while the latter packs and distributes it to the domestic market.

The Mexican government began to intervene in the milk market during the 40's to fight milk trade speculation. In 1963 the dehydrated milk Company CONASUPO (Compañía Rehidratadora de Leche CONASUPO) was created, and in 1972 it acquired its current name (LICONSA). LICONSA's main objectives were to dehydrate milk and to support rural production and consumption. It was a CONASUPO subsidiary company until 1991 when it became part of the Social Development Ministry (SEDESOL), its role being to support this Ministry's program in helping the poor. This program offers almost one third of domestic milk consumed, and is subsidized (externally and internally). At the beginning of the 70's, both institutions worked to achieve similar objectives, but new policies

implemented in the 90's abruptly transformed their respective roles, so that today the actual relationship between the two is merely a formal one.

This paper studies the case of skim milk powder and the role of CONASUPO and LICONSA in the trading, transformation, distribution, and sale of this commodity. The study is divided into five parts. Part I deals with the background to LICONSA and its role before and after the 1991 government reforms. It also offers an overview of the Mexican dairy market. In Part II the international competitiveness of Mexican dairy production is analyzed. Part III focuses on trade and SMP imports after NAFTA while Part IV presents the results of a quantitative analysis of SMP and liquid milk. The paper concludes (Part V) with some reflections on the domestic market of SMP, CONASUPO's and LICONSA's interventions and its status as a State Trade Enterprise (STE).

1. The Background to LICONSA

CONASUPO and LICONSA arose as a result of President Cardenas' government policies. 1938 saw the creation of the Market Regulator Subsistence, the principal purpose being to study production anomalies, distribution and popular consumer prices. In 1941 this Committee was replaced by National Distribution and Regulation (Nacional Distribuidora y Reguladora, NADYRSA), whose activities were taken over by national credit institutions as well as by worker and peasant organizations. At that time, traders were more like speculators whose role tended not to favor producers and consumers. In 1946, Mexican entrepreneurs set up a company called National Dairy (Lechería Nacional), the principal purpose of which was milk powder dehydration for the domestic market; the Mexico City plant was to become the largest in Latin America and produce half a million liters daily. In 1949, NADYRSA was replaced by the Mexican Export and Import Company

(Compañía Exportadora e Importadora Mexicana, CEIMSA) which, by the early 60's became CONASUPO. In 1963 CONASUPO's Milk Dehydrate Company was established and in 1972 it was transformed into Industrialized Milk CONASUPO (LICONSA). Its principal activity was milk dehydration, as well as its support for rural production and consumption. In the mid 80's it boasted 17 milk production plants and dairy development production programs (forage banks, genetic improvement, feed production, breeding centers, stockpiling, embryo transplants (LICONSA,1987).

In 1991 LICONSA underwent a first phase of restructuring when it sold off a series of plants. It currently has only nine (LICONSA, 1997). This sale meant not only a reduction in infrastructure but a restriction on its previous activities, which included the ability to sell certain products and services in order to generate additional revenue. Instead, it became entirely dependent upon the federal treasury. Nowadays, it no longer has very much to do with dairy production support, just industrialized and trade programs. In 1995, a second stage of restructuring meant that LICONSA no longer came under the control of CONASUPO but rather the Ministry of Social Development (SEDESOL), which ran anti-poverty programs such as Solidarity. This switch from one institutional body to another was known as *resectorization* (Diario Oficial, 1994).

To ensure that the SMP elaborated by LICONSA got to the people that mattered the Social Milk Supply Program was created (Programa de Abasto Social de Leche), and each state had its own. With such programs milk vouchers were distributed to children according to a benefit scheme. Through CONASUPO's network distribution enterprise (DICONSA), bulked or packed liquid milk (70 per cent), or powder milk in 240 gram aluminum bags (each rendering 2 liters of milk) was distributed. This last product, because it requires no specialized storage system, can be sold in any kind of shop, be it

privately owned or run by farm workers or the community itself. Nowadays there are 11,000 distribution points (9,413 for SMP, and 1,491 for liquid milk), and 5.4 million children from 2.6 million families avail of the program. Every day 3.6 million liters of milk are distributed and 40 per cent is allotted to rural areas while 60 per cent meets urban requirements.

In Mexico the dairy market is by no means uniform. On the one hand you have liquid milk, the price of which was controlled officially until December 1997. Liquid milk is basically bought by medium and high income consumers, and there exists competition among national and local brands. For companies such as Lala, Alpura, Boreal or Parmalat, their market is distributed throughout the country, but small or medium-sized industries have local shares, for example, Sello Rojo in the state of Jalisco, or Queen in La Laguna region (in the states of Coahuila and Durango).

On the other hand, you have dehydrate milk, which is half the price of liquid milk, and therefore accessible to the poorer social strata. The principal producer of this milk is LICONSA and its ingredients come basically from abroad inasmuch as domestic production tends to be essentially seasonal. In other words, as far as fresh milk is concerned, 51% of producers provide milk all year round, while 49% produce only in that part of the year that corresponds generally to the rainy season when there is excess production of liquid milk. These producers are normally "family" institutions selling their produce at a lower price than that which the more commercially organized providers are in a position to ask. While this gives the smaller producer a competitive edge the downside is the limited quantities of fresh milk available. Up until 1995, LICONSA acquired 86.2 million liters from family producers (SAGAR, 1998), while overall production was 1,402.6,

a mere 6.14%. The number of suppliers has fallen from 67.2 million in 1992 to 39.5 in 1995, due mainly to conditions of payment such as:

- to be a supplier it is necessary, prior to 1992, to have supplied milk to the company for more than 6 months.
- a fixed price per liter of milk to be set, with a minimum of 3.1% fat content, and with no discounts or rebates.

More rigorous quality testing to be carried out and with greater frequency.

As a result, from August 1997, a milk drink made from whey powder and vegetable oil (basically coconut oil) was approved. Its price is a mere 25 per cent lower than natural milk and it is designed to satisfy that sector of society not covered by LICONSA.

In brief, there are currently two different kinds of milk consumers in Mexico: the first drink milk the price of which has been settled by the free market since 1997; the second, from the poorer sectors of society, drink dehydrate LICONSA CONASUPO milk because it is subsidized (see below). For the former, the milk is provided by domestic farmers, basically intensive and large dairy farms, while for the second the milk is imported and is generally cheaper than that produced nationally.

The difference in milk consumption habits is due, on the one hand and as seen above, to consumer types; on the other, it is due to modes of production, which subsequently determine differences in quality and price structure. In Mexico there are three different dairy production systems. The first is the so called "dual purpose" system (dairy and meat production), which is managed in a rather rudimentary manner and located in tropical regions. It is responsible for 67% of dairy cattle, and produces 30% of domestic milk supply (more than half goes to homemade cheeses and 28% sells as raw milk). The second system refers to family or semi-intensive production and is to be found

in the state of Jalisco (Los Altos). It provides 25% of dairy cattle and produces 18% of the country's milk requirements. The third system, which is intensive in nature (in capital and resources) provides only 8% of dairy cattle yet produces 54% of domestic supply (Torres, 1991). It is located in the north of the country (in the states of Durango, Coahuila and Chihuahua) and in the central regions (in the Mexico City area as well as in the states of Guanajuato and Puebla). Basically, this production satisfies the commercial needs of cities such as Mexico, Guadalajara, Monterrey, and Acapulco, and is of a high quality and flavor.

The Mexican dairy sector finds itself, paradoxically, at a period in which demand could at any moment outdo supply, provided of course that the per capita income of the country's inhabitants increases, and yet, in spite of this situation and due to the governmental programs to offer milk to the poor, Mexico continues to import skim milk. In the last three decades, dairy production has had its ups and downs. At the end of the 70's, production was over 6 billion liters a year, and this was in part due to the existence of several governmental public investment programs (Public Investment Program for Rural Development -PIDER, and, the Mexican Food System, SAM). In the mid 80's, milk production surpassed the 7 billion liter mark, but in 1986, coinciding with high inflation and a macroeconomic crisis, production began to fall. This trend lasted until the end of the decade when the Program of Transition Towards Milk Self-Sufficiency was introduced (SARH, 1989).

This program began in 1989 as an initiative taken by the private industrial sector of dairy products to commit themselves to dairymen and Government alike. This commitment took the form of loans to dairymen to increase their cattle stocks, the latter, in their turn, reciprocating the commitment by selling their entire production to the dairy industry. The

loans were paid in kind (5 years maximum —and the industry deducted from the producer 3.5 liters per day for each cow included in the program. Results were positive yet partial inasmuch as, while increases in production of 10% and 4% were recorded in 1990 and 1991 respectively, the recovery of the primary dairy sector was due largely to the system of specialized production. In 1994 stagnation set in, but in recent years an average annual growth of 2.3% has been maintained. If we take as point of reference accumulated domestic production up to and including December 1997, this was 7.848 billion liters, which represented an increase of 3.4% on the previous year. SMP dehydration recorded 1.884 billion liters for the same period. Both quantities together (domestic supply and imports) totaled 9.732 billion liters. However, if we consider that SMP is mainly imported, it can be assumed, therefore, that 84.9% of milk consumption was satisfied through domestic supply, while the remaining 15.1% was met with SMP imports. To this one would have to add SMP imports destined for the food industry and the elaboration of confectionery, desserts, beverages, and so on (44,000 metric tons in imports). In other words, domestic milk production including SMP imports totaled 9,732 billion liters in 1997.

It should be pointed out that the product industrialized, commercialized and distributed by LICONSA enjoys a two-fold subsidy, making the purchasing price very low. The first subsidy is granted by the producer countries through policies such as the European CAP (Common Agricultural Policy) or the North American DEIP (Dairy Export Incentive Program), which have made it possible for CONASUPO to buy the product for LICONSA at a price lower than that which prevails domestically. The second subsidy comes from the State for the elaboration and distribution of the product by the state enterprise. Recently, the Mexican government have redefined criteria on subsidies in a document called National Financial Program for Development 1995-2000 (Programa

Nacional de Financiamiento al Desarrollo 1995-2000, SHCP, 1997). With respect to support for food production, the government plans to phase out generalized food subsidies with a view to focussing more specifically on the less privileged communities. At the same time these subsidies will form part of an integral approach in which they will be linked in with preventive forms of health care, the philosophy being that by improving nutrition you improve health. The aim, therefore, is to reduce generalized subsidies and promote those geared to the underprivileged.

These new policies have given rise to dissatisfaction among national producers, particularly at the beginning of this year in which, contrary to normal trends, there has been an over-production of milk in the dry season. The aforementioned producers want LICONSA to buy the milk to safeguard domestic prices. What they do not understand is that the differences that exist with respect to the consumption of liquid milk among the varying sectors of Mexican society are clearly defined, and that these differences also exist at the level of production costs, which prevent national producers from competing with the very low costs facing international producers of SMP. In this sense, Mexico faces a difficult situation. Its milk demand is guaranteed in terms of consumer income ; in other words, there is a relative self-sufficiency of milk in that the requirements of certain social sectors with the means to purchase are satisfied, while those without the means are covered by imports through programs of a social nature.

A few months ago the price of liquid milk was deregulated and the trend since then of the price of liquid milk has been upward. Due to rising prices alternatives are being sought, such as milk-formulated drinks (containing whey powder and coconut oil). Consumption of these, however, is not as yet widespread. If the idea is to include, by means of a socially geared policy, the child population of the very deprived areas in the

general consumption of milk, then the criteria of provision requires the use of subsidies, in this case, for both producer and consumer alike.

2. Mexican Dairy Production within a Competitive International Framework

In milk production worldwide, Mexico figures in 12th position. As was said before, in 1997 Mexico produced 7,848.105 million liters (SAGAR, 1998), and imported 1,884.516 (BANCOMEXT, 1993-1998). Total domestic supply was thus 9,732.623. Per capita consumption was 100.73 liters per year, daily consumption being 275 milliliters, which is below the amount recommended by the National Institute of Nutrition (Instituto Nacional de la Nutrición) which is 300 milliliters a day and for the FAO 500 milliliters a day. To be borne in mind is the fact that the Mexican population is growing in real terms at the rate of 1.6 million inhabitants a year. In other words, the population is growing at a rate of 2.05% while milk production increases at a rate of 3.4% (CONAPO, 1997).

In the first two months of 1998 a very unusual situation arose, in spite of adverse weather conditions such as drought and a delayed rainy season. Production was greater than other years (an increase of 7.5%) and in Mexico's main milk producing regions such as La Laguna, Los Altos de Jalisco and Aguascalientes producers suffered greatly from a fall in milk prices.

World dairy production reveals a growth of 54.2 % in 35 years, from 1961 to 1995, even when, in the period from 1990 to 1995, a decrease of 3.73% was recorded. Nevertheless, even in the best of years, annual average rates increase by no more than 3.5%. The total volume currently produced worldwide is 465 billion tons. The annual yield per animal has increased from 1,757 liters to 2,035 for the same period, a difference of 277 liters per annum.

The European Union is the largest world producer of milk. Germany and France have produced practically half of Europe's total output since 1984 when the Production Quota System was first introduced (USDA, 1993).

In the 90's, European milk production has exceeded commercial demand by 20 per cent. This excess has been used by selling subsidized milk to food processors and dairy producers in Europe itself. Subsidized exports represent almost half of dairy products. Reimbursements on exports in the case of SMP were around 70 per cent during the nineties. These exports had a crucial impact on the fall in world milk prices, which decreased to below the minimum price set by GATT. In brief, for Europe government subsidies on exports, production quotas, changes in production due to climate, as well as exports carried out with a view to generating capital, all these factors have played a part in the level and stability of international milk prices (Dobson, 1995).

The highest SMP production rates coincide with the leading butter production countries and vice versa; this can be explained inasmuch as SMP is a byproduct in the elaboration of butter, and when a country produces high quantities of SMP, the production of casein is generally low. Casein is a protein also derived from milk. It has quite a large world market and competes with SMP. So countries producing a surplus of milk employ this surplus in producing one of the two aforementioned products. (García, 1995).

SMP represents only a percentage of the world's milk production. In 1995, for example, it represented 0.74% of total milk production. In the period from 1970 to 1995, while milk production grew by 26.3%, SMP production registered a growth of 19.2%.

SMP production is very different from SMP exports. In 1987, when SMP prices increased three-fold in two months and producer countries exported 82% of their stock,

there was no increase in production recorded. Likewise, it can be affirmed that since 1984, SMP exports have represented in excess of 60% of SMP production.

SMP production is not in itself an objective of the dairy subsystem but rather an outlet mechanism for the surplus production of fresh milk. Given that milk has a very limited sell-by date, the elaboration of a byproduct such as SMP provides much greater commercial possibilities for the product.

Every country producing surplus milk has a clear policy regarding increased production, a series of stimuli, so to speak (financing, pricing, technical assistance, and so on). They also have clear policies on controlling production (production quotas). The result is that during a particular period milk surplus appears on the world market as a byproduct revealing very erratic behavior.

Finally, the principal dairy producing countries keep SMP supplies in stock in order to benefit, when the moment arises, from more favorable market conditions. What such producers do, in fact, is record a fall in milk production. In other words, the milk policies of most of the producer countries seek to discourage production, inasmuch as supply is greater than demand, and while a balance is being achieved an alternative is the purchasing of powder milk by world governments, which is then warehoused until the international price is right. Such is the case of the USA's Dairy Price Support Program.

In this context it is worth reviewing Mexico's trade partners such as the USA and Canada. Firstly, the USA, whose SMP supply in the 60's was about half a million metric tons, experienced a sharp fall between 1965 and 1974. Exports then grew annually until 1987 when exports became almost non-existent. It should be pointed out that between 1986 and 1987, reduction in support prices approved in the Food and Security Act of 1985, together with the measures applied in the Dairy Termination Program (measures

such as those relating to compensations for producers prepared to reduce production), facilitated the reduction of annual government purchases of approximately 4,500 metric tons, representing some 8.5 billion dollars. Thus, through the Dairy Termination Program between 1986 and 1987, dairy cattle were slaughtered or exported in exchange for subsidies. Particularly worthy of note is the fact that the USA covered only 50% of its dairy tariff rate quota vis-á-vis Mexico in the last twelve months.

With respect to Canadian exports of SMP three phases can be identified in the last thirty years. The first, from the early 50's through to the mid 60's, witnessed low export levels. In the second phase, up until the mid 70's, SMP export volumes were very high, while in the third phase, including the current year, exports have been moderate in size. Overall, it is possible to detect a gradual decline in exports. In 1997 exports to Mexico represented only 3.3% of total imports.

3. SMP Imports within NAFTA: the case of Mexico

Mexico has been a significant importer of SMP for the last 30 years. In the 70's, annual imports averaged 55,203 metric tons; in the 80's imports grew to 181,114 metric tons annually, while in the 90's this volume fell slightly to 167,572 metric tons. In the meantime, the country's population has increased, as has its levels of poverty.

Mexico's main SMP suppliers in the 90's were, in order of importance: Germany, USA, New Zealand, France, Ireland, Canada and United Kingdom. In this period, Mexico imported 1,340,580 metric tons, of which the aforementioned countries supplied 1,006,548 metric tons, approximately 75%. This percentage has increased in the last three years as shown in Tables 1 and 2. It should be pointed out that USA supplied only half of its imports quota. With respect to import prices USA exported SMP for at least \$100 less than its closest rival (see table 3).

Table 3. Average (FOB) Import Prices of SMP Paid by Mexico in 1997

Germany	1,981.84
USA	1,810.17
France	1,912.29
United Kingdom	1,945.79
New Zealand	2,102.81
Canada	1,919.52

Source: author's elaboration with data from BANCOMEXT.

The average import price for SMP paid by Mexico in 1997 was \$1,973.96 per metric ton, a reduction of 15.7% on the previous year. The volume of SMP imports increased to 171,319 metric tons compared with the year before, in other words, 8.6%. This reveals that with the December crisis of 1994 (Tequila crisis), the rate of SMP imports began to recover. For the current year, however, it is possible that the rate may fall again due to budget cuts in public spending brought about by oil price reductions and the world financial crisis. Is important to remember that Mexico was one of the principal beneficiaries of the Agricultural Trade and Assistance Act (Public Law 83-480), approved by US Congress in 1954. Mexico received, between 1972 and 1989 (specially from 1984 to 1988), 111,670 metric tons of SMP, equal to 68.3 million dollars (Suarez, 1994).

In the world market of SMP CONASUPO reveals certain perverse "monopolistic" characteristics. For example, when Mexico announces that it is planning to purchase powder milk, prices go up because CONASUPO is a significant buyer and therefore places pressure on the price level. Its imports in the 80's were between 15% and 21% of world SMP supply (Agrobiotec, 1992); in 1994 SMP imports fell to 7.7 % (USDEC, 1996). Mexico's principal suppliers are the European Union with 54%, New Zealand with 21% and USA with 12.6%.

Since 1995 CONASUPO has monopolized SMP imports and distributes approximately 55 per cent to LICONSA, 44 per cent to the private sector (dairy industry), and 1 per cent to the National Program for the Integral Development of the Family (Programa Nacional para el Desarrollo Integral de la Familia), run by the Ministry of Social Development. Until 1991, CONASUPO applied a tariff on import prices to bring them in line with domestic prices, the result being that for both private buyers and LICONSA there was little difference whether they bought SMP on the domestic or world markets. In 1991, LICONSA's trade activities came to an end, as was mentioned before, and it now dedicated full time to programs of a social nature. Likewise, from 1991 CONASUPO sales to the private sector were carried out by way of auction, with an initial fixed minimum price over and above the import price plus the company's costs in transportation and insurance (OCDE, 1997).

It is important to mention that M.E. Franks (St. Davis, Pennsylvania) is one of the main suppliers of SMP to Mexico. In 1992 it was taken over by the Belgium company Ecoval (Belgium) and benefits in two ways from exports: in one hand, through the Dairy Export Incentive Program, (DEIP) from 1992 to 1994, it exported 92 million dollars' worth of products and received 51.8 million dollars in export subsidies, which represented almost 37% of total subsidies paid by USDA in 1994. Ecoval specializes in exports to the big consumer countries and as far as SMP is concerned, under DEIP it exported to Mexico and Algeria 83% of its sales in 1994.

On the other hand, Ecoval, as a European company, also benefits when transferring its capital to the USA, in that this allows it to maintain production costs applicable in Belgium while exporting to its (American) subsidiary the (Belgium) surplus (of SMP, for example) sellable on the Mexican market. In the North American Free Trade

Agreement (NAFTA) milk and dairy products form part of a bilateral agreement between USA and Mexico. Canada, incidentally, excluded milk, fowl and eggs from negotiations, in order to protect supply through existing agricultural programs (CRASP, 1992). As we already know, in NAFTA tariffs on almost 90 per cent of products will no longer exist in 10 years' time, and for sensitive products such as skim milk, 15 years (CAST, 1993). NAFTA's base tariff rate for SMP (fraction 0402.10) will be between 139 per cent ad valorem or 1,160 USD/metric tons, according to the corresponding discharge category. The lifting of border tariffs on products coming from the USA will be carried out in 15 annual stages from the 1st January 1994, in the following way: border tariffs will be reduced by 133.4 per cent ad valorem or 1,136 USD/ton until January 1st, 2008 when there will be no tariff at all. During the first year of NAFTA, the tariff rate quota (TRQ) of SMP on exports from the US to Mexico will be 40,000 tons; that means that the first 40,000 tons are free of border tariffs, while tariffs will be applied to volumes in excess of 40, as showed in table 4.

The volume size free of border tariffs for SMP and dairy products is set annually. As was said above, the minimum annual volume of SMP from the USA is set at 40,000 tonsⁱ from 1994, and this quota will be increased annually by 3 per cent in relation to the previous yearⁱⁱ. In 1997, CONASUPO received authorization to import 43,587.7 metric tons of SMP from USA, in other words, 99.7 per cent of total SMP imports, the remaining 0.3 per cent or 121.4 metric tons being imported via the Southern border to industries, restaurants, hotels, and other services in the State of Quintana Roo and on Guatemala's border. Of this latter sum authorized, 80% was distributed to historically recognised clients while the remaining 20% went to companies according to the cool storage areas which they had available (SECOFI, 1997). In the same way as the TRQ regime of SMP applied

to the US under NAFTA, the Uruguay Round (GATT) established, at the beginning of 1995, a TRQ of 80,000 metric tons for any other member country of the World Trade Organization, without increases according to the "most favored country" principle. The tariff rate quota is the same as that which was set for the USA in NAFTA, which will decrease by 10% from now until the year 2004.

The Mexican dairy sector received 51% in subsidies from 1989 to 1994, while OCDE members countries received 63 per cent. There is a 12-point difference, but having said this, in 1995 the Mexican government reduced subsidies by 5% while the OCDE reduced theirs by 57%. (OCDE, 1997)

Table 4. Tariffs Rates for Skim Milk Powder (NAFTA)

Year	Effect	Rate of duty	Dollars rate of duty
1	January 1st, 1994	133.4	1,136.6
2	January 1st, 1995	127.8	1,067.2
3	January 1st, 1996	122.3	1,020.8
4	January 1st, 1997	116.7	974.4
5	January 1st, 1998	111.2	928.0
6	January 1st, 1999	105.6	881.6
7	January 1st, 2000	93.9	783.6
8	January 1st, 2001	82.1	685.7
9	January 1st, 2002	70.4	587.7
10	January 1st, 2003	58.7	489.8
11	January 1st, 2004	46.9	391.8
12	January 1st, 2005	35.2	293.9
13	January 1st, 2006	23.5	195.9
14	January 1st, 2007	11.8	98.0
15	January 1st, 2008	free	free

Source: SECOFI, 1994, HTS Heading/Subheading and Tariff Rates, Ed. Miguel Ángel Porrúa, January.

There are many sanitary rules and restrictions imposed on milk and dairy products imported or exported between Mexico and USA, particularly as far as fresh milk is concerned. This restricts Mexican exports to the USA. In sanitary terms USA views

Mexico as a "buffer" country in which all the ills of Latin America come to rest (ERS-USDA, 1992).

NAFTA began, Mexico implemented tariff quotas, basically of two kinds: safeguards and tariff rate quotas. In the latter were to be found the products that needed an import license prior to the Treaty's implementation and which were deemed more sensitive, such as powder milk. This mechanism permits the expansion of import flows in that, while reducing costs for the eventual consumer, the benefits or subsidies granted by the government (in this case, the USA) are transferred to production.

Secondly, the tariff rate is reduced when volumes exceed the stipulated quota, which also implies the transfer of benefits and subsidies authorized by the US government to its producers and exporters (Shagam and Plunkett, 1997).

4. Empirical Analysis

Statistical series have been elaborated from a range of variables pertaining to the empirical study of the evolution of Mexican imports of SMP during a period of 28 years, from 1970 to 1997. As is mentioned in the chapter on CONASUPO (A. Yunez), there is a limitation as to how we can confide in statistical series. Thus, it was necessary to rebuilt these present statistics based on data from other sources, in that in some cases they were incomplete (see Annex). Three quantitative exercises were carried out. In the first one, equivalent protection and its changes were the objects of study; the second dealt with a price transmission model and the third used an import demand model. The period covered was from 1970 to 1997.

Initially, to obtain the equivalent protection coefficient world with one year lagged prices (Pw_{t-1})ⁱⁱⁱ were employed against the domestic price (Pd) of liquid milk. This decision

was taken due to the fact that Mexican SMP production is very low given the high costs that it represents. Nevertheless, it can be said that imported SMP does compete with fresh/liquid milk in certain sectors of the Mexican market.

If one observes the complete series, that is, from 1971 to 1997 (27 observations in all) we find that there exists a protection in terms of prices of Mexican SMP vis-à-vis the product coming from the USA (see note page ⁱⁱⁱ). There is only one exception, 1990.

Table 5. Equivalent Protection of Mexican Milk

Year	PD/ $P_{w,t-1}$	Domestic Price (Pd)	World price lagged ($P_{w,t-1}$)
1971	5.304803	0.156125	0.029431
1972	3.338257	0.160929	0.048207
1973	2.849570	0.196958	0.069118
1974	2.701849	0.190552	0.070527
1975	2.373098	0.239392	0.100877
1976	1.582288	0.157895	0.099789
1977	4.514155	0.189974	0.042084
1978	4.463133	0.219287	0.049133
1979	4.104882	0.227931	0.055527
1980	3.796092	0.283929	0.074795
1981	5.050217	0.331024	0.065546
1982	1.567886	0.157248	0.100293
1983	1.802851	0.150021	0.083213
1984	4.086742	0.229239	0.056093
1985	2.182347	0.184679	0.084624
1986	2.105196	0.120899	0.057429
1987	2.154218	0.115767	0.053740
1988	2.214204	0.184130	0.083158
1989	1.584382	0.228151	0.144000
1990	0.966210	0.210820	0.218193
1991	1.260759	0.267099	0.211856
1992	1.455487	0.298099	0.204811
1993	2.430449	0.339869	0.139838
1994	1.763664	0.341772	0.193785
1995	1.056743	0.192408	0.182077
1996	1.328870	0.289604	0.217933
1997	1.183758	0.304878	0.257551

There is a Mexican protection price for liquid milk along the period considered (1971-1997) against American SMP production. Just one year, 1990, was an exception.

If we examine the values of this relation (Pd/Pw_{t-1}), we can observe a greater protection coefficient towards the beginning of the series, that is to say, towards the decade of the 70's, and as time elapses this begins to lessen.

A coincidence exists in values with respect to two governments: that of Luis Echeverría (1970-1976) and that of José López Portillo (1977-1982). Both geared public spending and investment to rural areas and the coefficient in both cases tends to be high with a decrease at the end of their time in office.

Subsequent administrations qualitatively reduced support for the rural areas and this shows in the fact that the protection equivalent is lower in relation to its predecessors. It should be pointed out that the domestic price of milk is generally higher than the international price, and this is due to import controls exercised by the Mexican government through its Commerce Ministry (SECOFI). To this one can add support mechanisms such as subsidies for animal feeding, low interest rates on loans, research, extension and training.

The second exercise uses a price transmission model of the form:

$$Pd = C_0 + C_1 Pw + C_2 Pd_{t-1} + C_3 \text{exr} + C_4 Cpi$$

Where,

PD is liquid milk domestic price in Pesos

Pw is SMP world price

Exr is exchange rate in US dollars per unit of local currency (from IFS of the International Monetary Fund IMF)

Cpi is consumer price index (also from IFS)

P_w is defined as the border price measures in local currency. That is, $P_w = e P\$$ where e is the exchange rate of the Peso against the US Dollar $P\$$ is the world market price in dollars of SMP.

The results are as follows:

Period: 1970-1997

$$\begin{array}{rcll} P_d = & 0.119 & + & 0.615 P_w + 0.200 P_d_{t-1} - 0.077 \text{ exr} + 0.00 \text{ Cpi} \\ \text{t-stat.} & = (3.66) & & (2.72) \quad (1.45) \quad (-4.50) \quad (4.14) \end{array}$$

R-squared = 0.70

The regression shows that government interventions in milk market have not isolated liquid milk domestic prices from SMP world prices (see the Annex for details).

The third exercise is base on an import demand model of the form:

$$M = C_1 - C_2 Q + C_3 S_{t-1} + C_4 P_w + C_5 Y + C_6 \text{ Pop}$$

Where,

M: are net imports of SMP in thousand metric tons

Q: is liquid milk domestic production in million liters

S: is CONASUPO stock of SMP

P_w : is world price of SMP

Y: is Gross National Product

Pop: is population

Period: 1970-1997

$$\begin{array}{rcll} M = & -198.4 - 0.02 Q - 0.00 S_{t-1} + 180.69 P_w + 0.00 Y + 0.006 \text{ Pop} \\ \text{t} = & (-1.93) \quad (-0.77) \quad (-1.95) \quad (0.45) \quad (1.25) \quad (2.63) \end{array}$$

R-squared 0.54

The coefficient of SMP world price is positive but not significant, meaning that Mexican SMP imports have been not related to world prices. There are two explanations for these. First, and said, when Mexico announces its plans and amounts of SMP to purchase in world market, prices go up because CONASUPO is a significant buyer and therefore places pressure on the price level. The second reason is that most of the imported SMP goes to social governmental programs, irrespective of its price. That is, the Mexican government is obliged to buy, in order to accomplish its subsidized milk distribution programs, no matter what the price is. In addition the stock of SMP carried by CONASUPO are significant and positive (although the coefficient is low) and the same happens to the population variable.

In summing, the results of our quantitative exercises show that CONASUPO's interventions in the milk market, have granted protection to liquid milk producers (although at decreasing rate since the end of the eighties). Have not isolated world SMP prices from liquid milk domestic prices, and have made SMP imports decisions irrespective of its world price.

5. Final Reflections

In Mexico two patterns in the consumption of milk can be identified. On the one hand, you have what is traditionally known as liquid milk, the price of which was recently established (1997) by the Federal Government. On the other hand, there is dehydrate milk, imported by the public sector company CONASUPO and reconstituted and distributed by LICONSA through social programs to fight poverty.

Aclarar siguiente parrafo:

CONASUPO undoubtedly plays a significant role in SMP imports. News that it is tendering internationally immediately pushes SMP prices up. It is difficult to say, from this present study, that CONASUPO buys wisely. Prices agreed, however, are generally high but are camouflaged in a whole series of different tariffs levied on the product. In other words, inasmuch as there exists a whole series of tariff fractions depending on the amount of fat, type of container, and so on, it is difficult to determine the considerable difference in purchasing prices. Additionally, CONASUPO's role is in the world market and funneled his purchases to Federal Government as LICONSA's social programs for poor children.

Furthermore, it is worth noting that while public sector companies have downsized -CONASUPO reduced personnel from 53,000 employees in 1989 to 3,400 in 1995, the range of their operations continues to be very large. There exists the fear with respect to milk that, should SMP imports be liberalized, then several different scenarios could arise: Many different Mexican buyers would compete on the world market of SMP and purchase at different times, which would reduce pressure to raise prices, which is currently the case. Industrialized companies in Mexico would prefer to import large quantities of SMP at competitive prices, which would subsequently discourage domestic production. This occurs even now, when pressure is constantly brought to bear to increase import volumes while there exists sufficient domestic supply.

Corruption practices would disappear, in that recently it has been confirmed that this particular industry —CONASUPO— on the one hand, belongs exclusively to the last president and his brother, one sole office representing a wide range of Mexican industries; on the other, the supplier industries such as Ecoval, New Zealand Dairy Board or the Irish Dairy Board who, in monopolizing supply, distort the market.

Another factor is the role of LICONSA which has been greatly reduced, in that from being a subsidiary of CONASUPO with a portfolio to run a whole series of programs, not all of which were related to simply promoting SMP commercially, nowadays it has become an organization running programs to combat poverty and restricted in its actions. In other words, LICONSA could have a much strong presence in the dairy sector (in trade and production).

The roles of both CONASUPO and LICONSA have not improved since entry into NAFTA. Firstly, the USA has not covered its import quota, and even when it is supplying SMP at the lowest market price, greater advantage could be taken of this were it to increase its exports to Mexico. Canada is not a participant in this milk agreement, and provides a small quantity. Secondly, Peso's devaluation which began in 1994 hides the real terms of exchange of dairy products between Mexico and USA, in that because we do not really whether US SMP exports increase or lower world prices to Mexico. Real problem is Mexico's milk production is not enough to satisfies its demand in terms of quality and price; that means only some society lawyers are capable to purchase milk and dairy products at current prices. Descripción de uqe series se usaron, fuentes de datos.

With the evidence showed before, is possible to support in CONASUPO milk case, that this institution has a behavior likes State Trade Enterprise in foreing and domestic role. In the world market has a strong position as mentioned, because to acquire one fifth of world supply give it a close monopsonic activities, like Josling conceptualization (Josling, 1998). His domestic role is funneled SMP to LICONSA, although is between one quarter to one third of domestic supply.

Recent LICONSA reforms has diminished his production and trade activities, however just attend social programs. Milk dehydrate consumption people has a strong

income elasticity, although if governmental institutions do not supply with subsidies, his consumption would drastically diminished, and there is not alternative or substitutes cheaper animal protein sources. Objective people are about 5.4 million children, and their consumption do not affect milk free market. In past time, may be affect because LICONSA acquires milk from domestic producers, nowadays living under pressure to buy some seasonal over production milk, but is minimal his participation.

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Annex

Price Transmission Model
LS// Dependent Variable is Pd
Sample range: 1971-1997
Number of observations: 27

Variable	Coefficient	Std. Error	T-Stat.	2-Tail Sig.
C	0.1195765	0.0326617	3.6610619	0.0014
Pw	0.6157005	0.2255694	2.7295385	0.0122
Pd (-1)	0.2000877	0.1376153	1.4539646	0.1601
Exr	-0.0771901	0.0171296	-4.5062313	0.0002
CPI	1.134E-05	2.738E-06	4.1431088	0.0004

R-squared	0.701953	Mean of dependent var.	0.221062
Adjusted R-squared	0.647762	S.D. of dependent var.	0.065973
S.E. of regression	0.039155	Sum of squared resid	0.033728
Log likelihood	51.93958	F-statistic	12.95343
Durbin-Watson stat	1.782533	Prob (F-statistic)	0.000014

Basically, all variables show positive signs, and the exception is the exchange rate; a possible explanation for this is the dairy technology component which depends on different regions. R-squared statistic is low for the first phase, nevertheless, for the second phase it is very high; values for F-statistic and standard error are acceptable.

Import Demand Model
LS// Dependent Variable is M
Sample range: 1971-1997
Number of observations: 27

Variable	Coefficient	Std. Error	T-Stat.	2-Tail Sig.
C	-198.40132	102.67917	-1.9322451	0.0669
Q	-0.0294674	0.0379381	-0.7767235	0.4460
S (-1)	-0.0006942	0.0003545	-1.9581906	0.0636
Pw (-1)	180.69360	392.88852	0.4599106	0.6503
Y	1.927E-05	1.537E-05	1.2540734	0.2236
Pop	0.0064403	0.0024470	2.6319774	0.0156

R-squared	0.544498	Mean of dependent var.	138.6079
Adjusted R-squared	0.436045	S.D. of dependent var.	74.89943
S.E. of regression	56.24717	Sum of squared resid	66438.62
Log likelihood	-143.7220	F-statistic	5.020597
Durbin-Watson stat	1.486856	Prob (F-statistic)	0.003513

Statistical series.

Pd is Mexican domestic price in US dollars by liter. Source: Banco de México.

Pw is Mexican SMP imports price average from USA. Source: ERS-USDA

Exr is exchange rate in pesos by US dollar. Source: Banco de México.

Cpi is consumer price index. Source: Banco de México.

M is Mexican SMP imports volume in thousand metric tons. Source: Bancomext (Foreign External Trade Bank) and SECOFI (Trade and Industrial Development Industry Ministry).

Q is liquid milk domestic production in million liters. Source: Statistics General Director, SAGAR (Agriculture, Cattle, and Rural Development Ministry).

S is CONASUPO stock of SMP. Source: CONASUPO.

Y is Gross National Product. Source: International Monetary Fund.

Pop is population in thousands. Source: CONAPO (Population National Council).

NOTES.

ⁱ For tariffs borders 0402.10.01 and 0402.21.01

ⁱⁱ In 1995 free import quota was 41,200 toneladas, in 1996 42,436 and in 1997 43,709.1.

ⁱⁱⁱ Pw is Mexican SMP imports price average from USA, Source: ERS-USDA.