Demand for Organic Milk Products in Portugal

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Abstract– **Milk consumption patterns are changing in Portugal. Factors like convenience, quality and safety increasingly constitute the basis for the Portuguese consumer purchasing decision. Demand for organic milk products (OMP) is emerging while most of these products are supplied by foreign companies. This study explores the demand for OMP in Portugal using both direct market observation and multivariate methods, in particular factor and cluster analysis. It appears that there are specific emerging segments preferring OMP, as they are increasingly concerned by health attributes and environmental protection.**

Keywords– **Organic milk consumption, market segmentation, Portugal**.

I. INTRODUCTION

Most European countries are seeking to promote organic farming for a variety of reasons. Organic farming is recognised as a significant contributor to sustainable agricultural development, and additionally can help to reduce production surplus from conventional agriculture [1]. Sustainable farming systems such organic farming are seen by many as a potential solution to continued loss of biodiversity, and receive substantial support in form of subsidy payments through EU and national governments [2].

The Portuguese milk sector is experiencing a production restructuring process that in the medium term would allow to improve its capability to face the new milk supply chain paradigm, largely driven by Research, Development and Innovation activities, and the changing food distribution and consumption needs.

Market liberalisation and new price policies will force milk companies to manage with international markets. Supply chain management is a key strategic factor for increasing organizational effectiveness, customer service and profitability [3].

Preparing appropriate strategies to improve competitiveness and added-value for milk will be the main business challenge. Increasing dependency on suppliers and the high concern for protecting the environment force modern organisations to green their supply chains [4]. In addition, green marketing strategies are an important commercial feature in developed countries [5]. At the same time, the purchasing function is shifting from the transaction-oriented to the relational-oriented approach, and it is also shifting from domestic to global sourcing [6].

The consumers' expectations are today more than price, brand or taste. The growth of consumption of OMP is a hard fact worldwide. In the United States retail sales of organic milk and cream have been growing since the mid 1990s, reaching over one billion Dollars in 2005, 25 percent more than in 2004 [7]. Meanwhile, world sales of conventional milk have remained almost stable since the mid 1980s. The Portuguese annual per capita milk consumption is approximately 90 litres, which is near to the EU average [8].

Considering the nonexistence of an organised organic milk production in Portugal, the lack of data about it, and the OMP situation in the European Union (UE) and worldwide, this research aims to explore the Portuguese demand for OMP. The underlying general hypothesis to be tested is the existence or not of organic milk consumer clusters in Portugal.

The next section summarises the methodology used. Section 3 reports the main results obtained, trying to demonstrate that the Portuguese demand for OMP could constitute the basis for an emerging subsector. The paper ends with some concluding remarks regarding the relevant strategies concerning the future of the OMP in Portugal.

II. METHODOLOGY

One of the market research methods to collect factual and objective information is direct observation. To obtain information regarding the organic milk market, points of sale were used for gathering data on a determined set of variables such as product ranges, prices, product origin, packaging and positioning on shelves. In the selection of hypermarkets visited three

criteria's were considered: volume of sales (selected hypermarkets represent more than 50% of Portuguese food distribution sales), geographical proximity to large centres of consumption and business related positioning (customer services) in each hypermarket.

On the other hand, in order to characterise the OMP consumption in Portugal, the end consumer was surveyed, on a population base of 1,260,860 consumers (area of Oporto). In preparing the questionnaire, a revision of secondary information has been carried out. The variables under analysis were sources of information about OMP, knowledge, perspectives of future consumption, places of purchase, frequency of purchase, monthly spending, product characteristics, frequency of consumption, the image of organic products, price, reasons for purchase, quantities purchased, behaviours and life styles, area of residence, gender, age, level of education, social class and income.

In defining the sample size, it has been assumed that 50% of the population from Oporto may consume OMP and 50% may not. Considering the differences between the districts that belong to the Oporto metropolitan area, the sample has been established proportionally to the population size of each. The stratification allows reducing the variance sources and thus, some errors of interpretation are minimized if the sample as a whole is considered. Under a level of confidence of 95.5% and with a margin of error of 8%, 625 consumer interviews were conducted in the area of study.

All the interviews were performed on Saturday afternoon, when the majority of the consumers are more receptive to answer the questionnaire. In this data collection process, two factors have been balanced: proximity to the food shopping centres and minimum distances between each one in order to respect the homogeneity of the consumer behaviour. Table 1 shows the number of the interviews that was applied in each district.

After data collection, a descriptive analysis has been done to understand the general structure of the results. In order to understand the correlation between variables, a bivariate analysis was developed. Subsequently, using factor analysis technique, main dimensions or factors explaining the inter-relationships between variables have been identified. Finally, cluster analysis was applied to establish differentiated consumer segments.
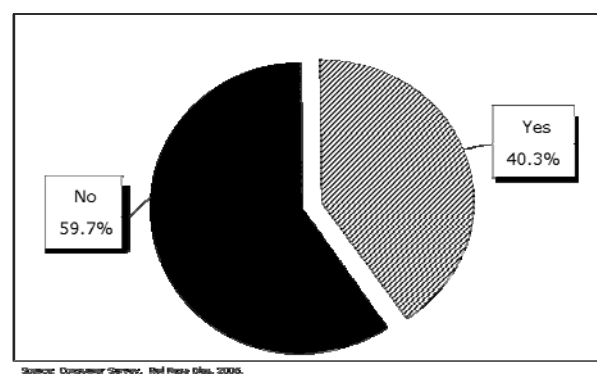
Table 1 Stratification of the sample

Districts	Sample
1 – Gaia	134
2 - Porto	126
3 - Gondomar	80
4 - Matosinhos	79
5 - Maia	60
6 - Valongo	46
7 - Vila do Conde	39
8 - Póvoa de Varzim	34
9 - Espinho	27
Total	625

Source: Consumer Survey, Rui Rosa Dias, 2006.

III. RESULTS

First data obtained from direct observation at the points of sale confirm the existence of an emerging consumption of OMP in Portugal. The majority of OMP on sale originate from EU countries. The most observed range was milk in its three versions (full fat, half-fat, no fat), in brick packaging, with no form of specific identification at the point of sale. Nevertheless, there are also fruity yoghurts, cheeses, butter and milk desserts. At the distribution level was also observed private brands in organic milk products, mainly milk. Regarding prices, the price observed for a litre of half-fat organic milk was, in some cases, on average 120% above the conventional milk. With respect to positioning on shelves, the most observed position was the eye level.

Fig. 1 Consumption of organic milk products

Fig. 2 Degree of knowledge of organic products
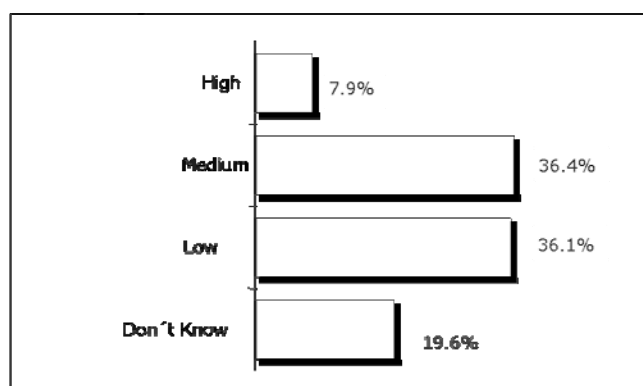

Fig. 3 Attributes of organic milk products

As showed in Figure 1, 40% of the sample had already consumed at least once an OMP. On the contrary, 60% never had contact with such products. Of those, 10.3% will consume them in the near future (3 years). On the other hand, for 80.2% to do so, some factor should change (e.g. more information and lower prices).

Regarding the level of knowledge, Figure 2 illustrates that there is a considerable lack of knowledge to an extent that around 20% had no idea what an organic agricultural product is. Nevertheless the large majority, 72.5%, have heard about it, although they do not know the definition or do not know how to differentiate it from other concepts of agro-production. Approximately 8% know the Organic Agriculture concept, mentioning even the definition.

There are some conceptual distortions between what is an organic product and a natural or integral one. Nevertheless, 74.5% agreed or completely agreed with the statement that OMP are products without synthetic chemicals. With regard to the valorisation of attributes, health represents the largest share of favourable opinions.

As can be seen in Figure 3, the perceived impact that OMP may have on consumers' health and health of their family congregates 98.7% of favourable opinions. On the other hand, aspects like taste and nutritional value are more valued than the environment. Still, a significant group of consumers valued the environment, reaching a degree of agreement of 85.6%. In fact, there is a strong correlation between health concerns and the degree of knowledge about these products. In other words, those consumers with higher level of knowledge demonstrated to be more health conscientious and also are more willing to pay.
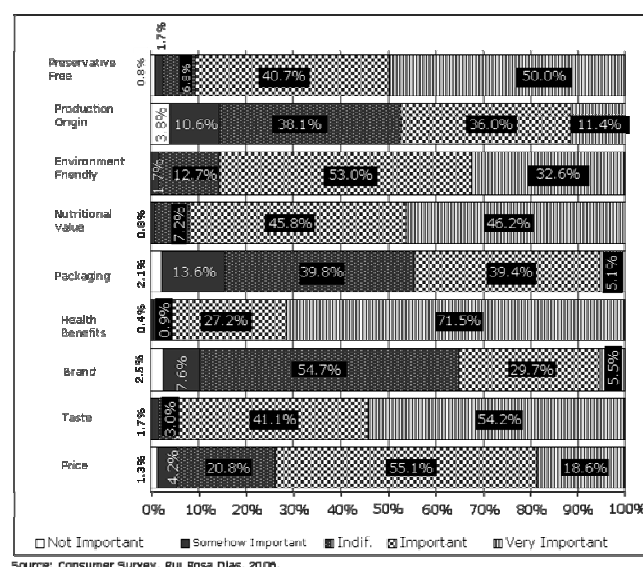
In addition, they are also those who regulate their life style on a constant search of a healthy diet, physical exercise and the purchase of chemical additive-free food. Other variables presented a strong correlation, like monthly family income and the level of consumption of OMP, being those households who consume more OMP also those who have higher income level.

Regarding the correlation between brand valuation and consumption, those valuing more the brand factor are those who less consume OMP; nevertheless, the brand is highly valued attribute for one of the three segments identified.

The application of the cluster technique allowed the detection of homogenous groups of consumers whose behaviour, habits and attitudes were grouped together for being quite similar. Three segments of the OMP market in Portugal have been identified.
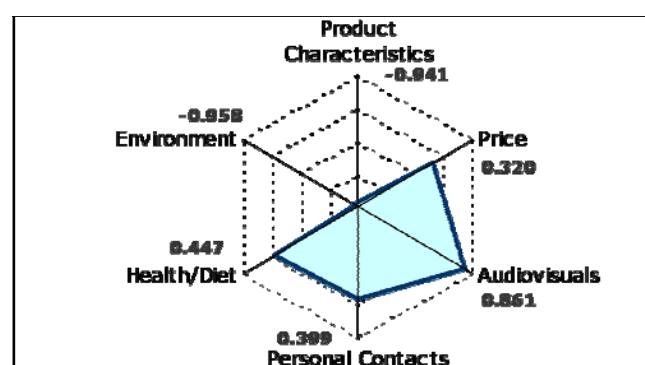

Fig. 4 Cluster 1

As can be observed in the Figure 4, the first segment values most the information about OMP which is conveyed by audiovisual media: television, radio. It highlights that they also value and support their purchase choices on the basis of the personal factor: friends, relatives. The valorisation of food /health is perceivable higher than the environment attribute, while the price is a decisive factor when purchasing if compared with intrinsic and other extrinsic characteristics: taste, colour, smell, packaging and brand.

This segment is made up by 63.6% of women, young but also a significant percentage of old people, with a lower level of education, middle class, with a family income between 1000€ and 2000€ per month, pertaining to peripheral districts and do most of their shopping at the hypermarkets. This cluster represents 34% of the sample, and only approximately 25% consume on a daily basis. Curiously it is to this segment that the strictly organic consumers belong, those who always consume OMP, which justifies the personal factor option as a source of information.

From the analysis of the second cluster (Figure 5) it could be concluded that the main sources of information used by this group when shopping are friends and family (personal factor). They are characterised by normally frequenting organic product markets and fairs and they use frequently direct personnel communication in the divulgation of OMP. In general they show a big concern for the environment and some of them belong to environmental movements or associations. Contrarily to the previous segment, taste, colour, smell and external appearance of OMP or packaging, are attributes just as important as area of production or brand. More than half (55%) are women, 88.5% of them belong to the 20 to 49 age group and approximately 50% have high level of education. They belong mainly to the middle and upper class and the family income is between 2000€ and 3000€ per month.
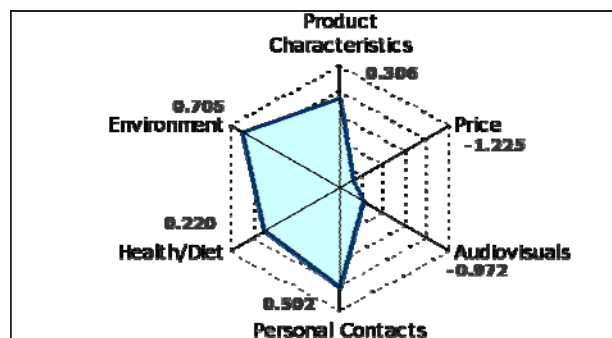

Fig. 5 Cluster 2

These consumers are willing to pay between 10% and 25% more for OMP, figures slightly higher to those corresponding to the previous segment. They purchase mainly in hypermarkets, however 21% buy from dietetic shops and stores specialised in organic products, and a reduced percentage buy directly from the producer. This segment represents 50% of the sample. However, only 25% are daily consumers.
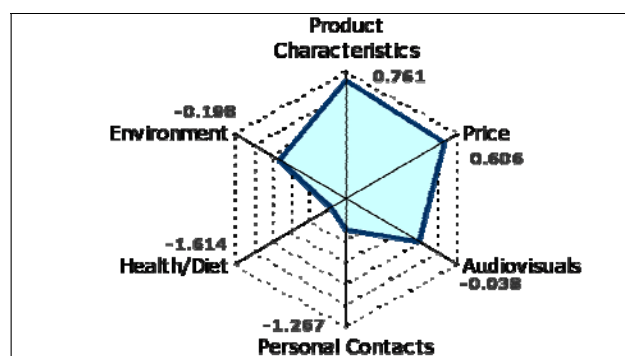

Fig. 6 Cluster 3

The third market cluster that was identified (Figure 6) groups those consumers who support their OMP purchase decisions on the value for money factor. For this group, the smallest of the three clusters, quality is associated to the area of production (product origin) and organoleptic characteristics, being these attributes the basis for purchase choices. Made up by 62% of women, it is the youngest of the three clusters, around 59% have high education and 25% are upper-class. In addition, this group presents high family income levels and the highest level of knowledge of organic agriculture. Furthermore, they are more predisposed to pay more for an OMP. The large majority lives in the big city centre. They normally practice sports and

demonstrate a strong preoccupation about the environment and health. This cluster represents 16% of the sample.
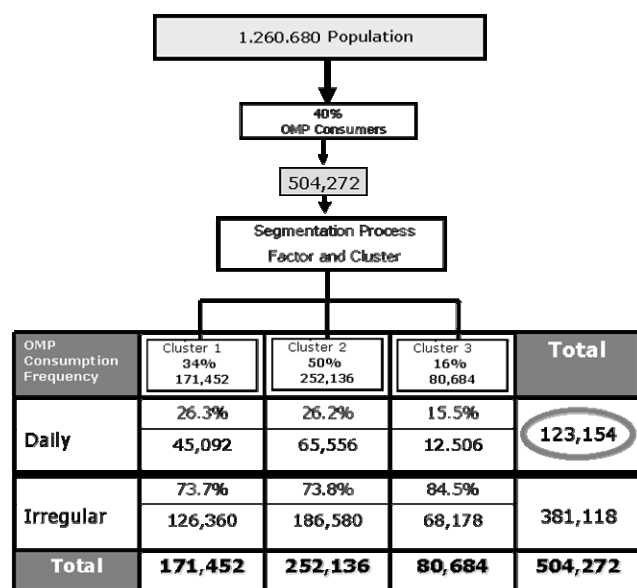

Fig. 7 Demand for organic milk products in Oporto

In short, there are three OMP clusters with different behaviours (Figure 7). The actual demand is made up by 504,272 consumers, from which 123,154 are daily consumers. There is a potential market of around 381,000 consumers having already consumed an OMP at least once. Of the 756,408 consumers that have never consumed these products, approximately 78,000 may do so in the next three years.

IV. CONCLUSION

The Portuguese milk sector will face in the short and medium terms environmental problems and activity adjustments to comply with current regulations. In the longer term it will have to deal with the end of the quotas system. These factors likely will force some production abandonment as well as industry concentration.

Some of these challenges constitute an opportunity for the Portuguese organic milk susbsector. An organic market guideline at national level is considered indispensable. It would also be necessary to develop the OMP subsector under two perspectives: management integration and coordination between all stages of the supply chain. At the production level, it is crucial to transmit to producers the need to be more efficient. Meanwhile, it will be necessary to find the potential EU organic milk suppliers. Spain, France and Italy would be suitable options.

According to this study, it is estimated that the number of consumers of OMP would grow significantly. The young generation currently with low purchasing capacity and high receptivity to change represents the big consumers of tomorrow. If environmental and quality of life education is enhanced during the coming years, change in consumption preferences would be faster and sustainability a true practice.

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