

The Singularity of Agrarian Cooperatives Management: Cooperatives Positioning in the Olive Oil Sector in Spain

Yolanda Montegut

Faculty of Law and Economics, University of Lleida
C/ Jaume II, 73 Campus de Cappont, 25001, Lleida, Spain
Tel: 34-973-703-3323 E-mail: ymontegut@aegern.udl.cat

Eduard Cristóbal

Faculty of Law and Economics, University of Lleida
C/ Jaume II, 73 Campus de Cappont, 25001, Lleida, Spain
E-mail: cfeduard@aegern.udl.cat

Frederic Marimon

Faculty of Economics, International University of Catalonia
Immaculada, 22, 08017 Barcelona, Spain
E-mail: fmarimon@cir.uic.es

Received: July 30, 2010 Accepted: November 5, 2010 doi:10.5539/ijbm.v6n6p16

The research was financed by Sabadell Saving Bank. (Sponsoring information)

Abstract

Cooperatives are the basis of the social economy in many agricultural sectors. This research work investigates the management situation of the olive oil cooperatives in Spain. The study identifies a typology of cooperatives based on their attitudes towards the sector. A positioning map of the different types of cooperatives is then established on the basis of their characteristics. The study concludes with important managerial aspects of cooperatives.

Keywords: Management, Commercialization, Segmentation, Positioning, Cooperatives, Olive sector

1. Introduction

Cooperatives are the basis of the social economy in many agrarian sectors. Such cooperatives have special characteristics that give them a 'democratic' management style and a relative subordination of their capital interests to their social aims. Agrarian cooperatives are 'associative' structures, whose development has been associated with a desire to improve the condition of rural society as changes have occurred in production, commercialization, financing, and services in the agricultural sector. They were originally created with a view to defend the interests of small and medium-sized farming enterprises in the face of decreasing incomes, increasing costs in production, and diminishing institutional subsidies.

A cooperative that is bound to its social and geographical environment assumes an important role in the economic development of local communities. It is the contention of this study that it is necessary to respect the underlying principles of such cooperatives in searching for solutions to their problems—because losing their essential identity would render them more vulnerable.

The strategic scenario in which cooperatives will function in the immediate future in Europe will be determined by modifications in the Common Agricultural Policy (CAP) of the European Union (EU) and the policies of the World Trade Organization (WTO). It is possible that these policy modifications will increase territorial

imbalances and enable international companies to act as agricultural oligopolies, to the detriment of local cooperatives. In practice, support for agrarian cooperatives requires sustainable development of the economic and social rural environment.

The main objective of the cooperatives has been the commercial sale of their products. However, the modern socio-economic situation has increased the need for cooperatives to develop new objectives—such as respect for the environment, new marketing strategies, diversification, and so on.

In the particular case of the olive oil sector in Spain, the commercialization of the product and the restricted role of the productive sector in the distribution of that product raise significant questions about the value added by the cooperatives. This, in turn, has ramifications for the incomes of the farmers. The farmers do not actively participate in the commercialization of their product. Their focus is on delivering their olives to the cooperative for a certain price, and they do not have a role in the important issues that proceed from the time that the olives arrive at the cooperative until the olive oil is sold to the final consumer. Because most of the cooperatives were founded many years ago, they are not well adapted to modern market requirements in an open, competitive, global environment.

The olive oil sector represents a considerable importance both nationally and internationally. Spain together with Italy occupies first place in the ranking of countries producing olive oil worldwide. Andalusia with 60% of the Spanish olive land surface produces 80% of the olive oil; the remainder is produced mainly in Castile-La Mancha, Extremadura and Catalonia.

In Catalonia, olive oil has a major socioeconomic importance acquiring a decisive role in generating employment and wealth in many rural areas. It should be noted that there are five olive oil guarantees of origin in Catalonia. Furthermore, most of the production is carried out in cooperatives, which aims to improve the income of farmers and promote the area where they are located.

The present study analyses the general characteristics of the olive oil sector in Spain and the role of the cooperatives in the production of olive oil. It is apparent that the cooperatives play a role in production, but that they do not have decision-making power with respect to the market. With subsidies to the sector likely to diminish as the CAP is reformed, it is clear that it will be necessary for the cooperatives to adopt a market-oriented approach.

2. Literature Review

Many scholars have studied business organization and management in general (Hall, 1991; Handy, 1985; Menguzzato & Renau, 1991; Mintzberg, 1979, Farsi *et al.* 2006), and several have addressed these issues in the olive oil sector specifically (Crescimanno *et al.* 2002; Gil *et al.* 2004; Scarpa & Giudice, 2004; Siskos *et al.* 2001; Tsakiridou & Mattas, 2005). The majority of studies on the olive oil industry have addressed the dietetic, agronomic, and technological aspects of the sector, but few have considered the productive, economic, or business aspects. In particular, there have been few studies of the internal management style and competitive strategies of olive oil companies.

With regard to agrarian cooperatives in general, the following are worthy of note. Carrasco (1993) analyzed the financial problems of such cooperatives. Vargas (2002) contended that a concentration of companies and partnerships is required for the effective development of the sector. Vargas (2003) measured the performance in agricultural co-operative societies. Morales (2007) reviewed the situation of cooperatives in Andalusia. Caballer *et al.* (1987) analyzed the economic, financial, and management structure of Valencian cooperatives, and Gómez-Limon *et al.* (2003) analyzed the economic, financial, and management structure of Castile-Leon cooperatives. Julià (1993, 1994) and García (2002) described agrarian cooperativeness in general. Bahamonde (2003) analyzed the strategies of the cooperatives. Bel (1997) studied financial flows in the Spanish agricultural cooperative sector. Vidal *et al.* (2000) and Gómez (2004) focused on cooperatives in the irrigation region of Valencia. Several authors, such as Oltra (1992), Segura and Oltra (1995), and Vidal (1999), have analyzed the efficiency of the management of cooperatives. Vargas (2003) measured the performance in agricultural co-operative societies.

With regard to oleic cooperatives in particular, López Ontiveros (1982) undertook a detailed analysis of the sector. Tous and Romero (1993, 1994a, 1994b) did study the sector in Spain and its guarantee of origin (Note 1). Fortuny (2002) also analyzed the oleic sub-sector in Catalonia (Spain). Domingo and Loma-Ossorio (1991) studied oil olive cooperatives in Andalusia, with particular emphasis on their management and possible solutions to the problems they faced. Vargas (1993) reviewed the olive oil industry in the Huelva province. Pérez Rojas (1997) studied cooperative management through a review of the accounting systems of olive oil cooperatives in

Córdoba. Torres Ruíz (1998) studied the marketing of olive oil from the perspective of the commercialization of the product in Jaén. Mozas (2004) conducted a survey questionnaire of the internal organization of the olive oil companies in Jaén. Senise *et al.* (2008) analyzed the situation of cooperatives in the olive oil sector in Jaén (Spain) to see whether they are developing a reactive or proactive attitude towards sustainable development. Carlos Morales *et al.* (2003) explored the roots of the co-operative movement in the food oil sector. Montegut *et al.* (2007) analyzed the features of the Catalan olive oil mills cooperatives.

3. Objective and Methodology

The paper provides an overview of the olive oil cooperative sector in Spain to determine its strengths and weaknesses, and to consider possible threats, opportunities, and strategies. This allows reaching other objectives: the establishment of a typology of cooperatives according to their behaviour; and the establishment of a positioning map to illustrate the most important characteristics of the sector; propose some strategies depending on the cooperative type...

In order to select our target population, we took those cooperatives with activity codes in the Spanish fiscal systems that are under the "411" family. This code includes the manufacturing companies of olive oil. The generic industries in this code are those related with food, drink and tobacco. The Catalan Chamber of Commerce provided us with the list of these cooperatives. From this data we concluded that there were 219 olive oil mills and 137 of them were cooperatives. The size of our target allows us to decide taking all of them.

As is usual in an empirical study, the process for getting data is complex, particularly in the post surveys, thus we have to face two problems: errors in the postal address and the lack of interest to respond. In order to solve these problems we conducted telephone contacts to enhance the response rate. Eventually we got a 51% response rate, which may be considered acceptable for the kind of analysis performed.

The methodology is based on a questionnaire survey of a representative sample of cooperative managers. In preparing the questionnaire, a full review of the extant literature was undertaken, and interviews were conducted to assess whether the questions were comprehensible and appropriate. The questionnaire covered: (i) general characteristics of the cooperatives; (ii) information about the production, finances, and sales of the cooperatives; and (iii) opinions on the general characteristics of the sector.

The fieldwork was conducted during April–June 2006. The population consisted of the managers of 137 cooperatives in the olive oil sector in Catalonia (Spain). In all, 70 valid, completed questionnaires were returned. We consider this sample sufficiently representative: there are cooperatives from different zones, with different turnovers and different number of employees.

The general characteristics of the sampling technique are shown in Table 1.

A factor analysis provided the main factors that characterize cooperatives within the sector, and a multivariate analysis of the responses was conducted to establish segments of cooperative types within the sector.

4. General features of the Spanish olive oil mills

Most of the olive oil Spanish mills were established between 1910 and 1920. Thus they are mature companies: the cooperativism allowed the farmer to elaborate and distribute their produce. Nevertheless, the size of these cooperatives is so small that it does not guarantee having enough resources to implement strategies to allow them to survive in a free market. From the managerial point of view, small size ends up in a low professionalization degree; some cooperatives do not have a manager and therefore an inefficient marketing focus and weakness in its managerial ability is observed. There are other indicators of the low capacity management of the cooperatives: very few have a quality system based on ISO 9000 standards or in any other system. None of them has any environmental system based in ISO 14000. The only standard some of them have is about the product itself with its "guarantee of origin". Another indicator of the lack of marketing focus is that its olive oil can scarcely be found in supermarkets, although recently this is improving. There are very few marketing actions.

In spite of this, we observed some changes in the production system used by these cooperatives, mainly since the entrance of Spain into the European Union. Additionally, there have been some improvements in the inventory systems, modernization in the bottling and packaging equipment, improvements in the olive cleaning system, etc... All this has enabled reducing costs and increasing quality –in product and presentation– at the same time.

All the cooperatives have their own brands, so there is not a sector policy in order to find a specific position in the market. At the same time, they limit their strengths when the sector negotiates with third parties.

We would like to point out another signal of sector weakness regarding its marketing policy: there is a high percentage of production distributed in bulk –more than half of its production. Although it may be said that the

trend is improving since every year there is more and more production that is bottled.

Most of the cooperatives have different sections, although the basic activity is the production and commercialization of the olive oil. Secondary activities are centred on wine production or in the provisioning of other services to its members.

5. Segmentation of the cooperatives

To distribute the respondents into homogeneous segments of cooperatives with similar attitudes towards the sector, a k-means conglomerate analysis was performed (Hartigan, 1975; Hartigan and Wong, 1979).

The k-means algorithm has been widely accepted as a data grouping technique (Siverman, 1986), but it presents an important inconvenience: the investigator has to know the number of categories in advance, *a priori*. In order to avoid this, a cluster analysis was performed first, with a hierarchical methodology to establish the number of segments (Ward method). This has been widely used in social sciences research (Balshfield, 1976). This minimizes the variance inside each cluster (Aldenderfer and Blashfield, 1984). Once the optimum number of clusters (three in this case) was found, a k-means hierarchical cluster analysis was performed.

A battery of questions was used for this purpose. The questions were developed from a careful review of the extant literature and from interviews with professionals and experts in the sector. Respondents were asked to reply on a *Likert* scale (from '1' = 'strongly disagree' to '5' = 'strongly agree'). The average score for each question was then calculated. The results are shown in Table 2.

A factorial analysis was then performed on the responses to the questions shown in Table 2 to extract the relevant factors to assess the sector. The segments were then positioned according to the factors shown by the factor analysis.

The hierarchical analysis demonstrated that three groups existed. A conglomerate analysis was then conducted. Three segments of different sizes were thus obtained: a large group (including more than half of the sample) and two smaller groups (representing about a quarter of the sample each).

5.1 Common characteristics of the whole sample

The first feature that can be observed is that these cooperatives have had a long tradition (with some having been in existence for more than a hundred years). At the same time, their associates (Note 2) were aged, as happens in the agricultural sector in general. It may be that, as a result of both, we found out that the commercialization effort was limited. They are managing cooperatives now as they used to in the past. Therefore, they were not concerned about overseas markets, as they did not in the previous century. Just to highlight this, note that sales to foreign markets represent less than 25 percent of total sales. Management is more orientated towards the product (technical characteristics as density, acid degree, purity, colour, scents...) than to its production and sale. Really, managers are mainly interested in some elements of the product as quality, packaging, labelling, branding or a guarantee of origin. This is the main reason why most cooperatives take the price of their competition to fix their own price. They do not see how much the market would pay for it, but how much it costs to produce, in order to guarantee a return of the investment to their associates. At the same time, the main channels of distribution were their own business houses and direct sales. In general, they are neither focused on distribution nor on innovation. Very few were aware of the importance of quality management, and very few had a quality certification.

Another general feature observed in the sector is its worries about losing subsidies. Actually, since Spain joined the EU, Spanish farmers' incomes have increased, surpassing the subsidy threshold. Losing these subsidies might give more power to large corporations to commercialize olive oil. We may conclude that there is a general pessimism and a lack of self-confidence in the sector. They carry on as normal, but the world is globalizing, therefore they find themselves losing competitiveness.

There is also concern about the training of personnel and about difficulties in recruiting qualified personnel—especially suitable managerial personnel. They are not able to attract the profile of managers they need. They need to outsource the control management to outside auditors.

Most cooperatives belonged to a second-degree cooperative and are federated (Note 3). Nevertheless, very few were associated with a second-degree cooperative of olive oil. On the contrary, they tended to associate with second-degree entities related to the supply side. The Spanish agricultural cooperatives were more interested in political matters than in the economic aspects of their existence. Thus, although 57.2 percent of the cooperatives belonged to a federation or representative organization, only 46.2 percent belonged to a second degree cooperative, as is said in the *Libro Blanco Social en España* (Barea and Monzón, 1992).

5.2 Characteristics of Segment 1

The first segment consisted of small cooperatives of local scope, with a 'closed-minded' attitude, and a non-professional approach. This first segment consisted of 19 cooperatives, which represented 27.1 percent of the sample.

5.2.1 General characteristics

This segment was characterized by small and medium-sized cooperatives. This was the least professionalized segment, according to management. More than two-thirds did not have a manager at all; in very few of them, a manager was hired, and the remaining had a manager who was an associate. Managers in this segment had the lowest level of educational attainment. Most of them do not have a university degree. As a result, economic management control was exercised through external auditors.

Although they are small, the cooperatives (Note 4) of this segment had other produce: wine, almonds, supplies, and an agro-shop. Compared with the other segments, the wine section was very prominent.

5.2.2 Production

The changes introduced in production processes in recent years were mainly concerned with upgrading equipment. This had led to an increase in production and a decrease in costs. It is important to note that they are focused mainly in production aspects rather than in marketing, commercialization or distribution. This may explain why this was the only segment that sold more product in bulk than packaged. They do not care very much about international commerce, and most of them do not export any of their produce. They do not need to enhance the image of the product, as the scope is very local, where they are well known, so they do not invest in packaging.

The turnover of the majority of cooperatives in this segment was less than 1.2 million euros. They had a production level of between 25 and 250 metric tons. Accordingly, this segment had the smallest staff: they had between one and five permanent employees and between one and five temporary employees. In general, limited human resources in their organizations characterized these oil cooperatives.

5.2.3 Finances

When credit is needed by the cooperative, they go to its own credit section of the cooperative; the second most common financial source was the associates. This credit section works as a bank for the associates. The funds that the associates bring to the credit section allow cheaper financing for other associates. At the same time, the funds provide a higher yield than other financial entities.

5.2.4 Sales

Sales for this segment are very local. The scope is quite reduced. Actually, a quarter of its commercial activity is in the same village where the cooperative is located; almost half of its activity is in Catalonia; the rest in Spain, France and Germany (10.5 percent each) and the United Kingdom and United States of America (each 5.3 percent). They are not focused on marketing campaigns. They outsource this work; only 21.1 percent perform this function themselves. When they assess the results of the campaign, only 50 percent of the cooperatives that had undertaken marketing campaigns believed that they were successful, and another 25 percent stated that they did not know whether their campaigns were successful.

In terms of marketing management policy, the cooperatives in this segment attached the most importance to the product and to the price. They do not pay attention to the distribution and communication aspects. Nevertheless, it is important to note that most of them take the price of their competition as a point of reference. They do not play an active role fixing the price, due to the fact that they do not have a specific strategy. It seems that they act as they are used to, without taking advantage of their own position and knowledge of the market. It is interesting to note that they believe that their campaigns had not been successful and were unnecessary because their customers were loyal. This point demonstrates as well the lack of interest for commercialization. In the same line, they are not pushing to new markets, but they focus on the local and loyal clients.

5.3 Characteristics of Segment 2

This segment consisted of medium-sized cooperatives with limited scope and limited market focus. This was the largest segment. It included 36 cooperatives and represented 51.4 percent of the sample.

5.3.1 General characteristics

The segment was formed mainly by medium-sized cooperatives; almost half of them have more than 200 associates (Note 5). This was the segment with the largest proportion of young associates, although the sector in

general is quite aged. Only half of the cooperatives in this segment belonged to a second degree (the lowest proportion of the three segments).

Slightly more than a quarter of these cooperatives did not have manager, and almost half of them had given this role to an associate. It is the segment with the largest proportion of managers with specific training in cooperative management. These managers attained a high-level academic degree. In spite of this, the economic control was done by external auditors in most cases. This segment is more professionalized than the first one, but there is a lack of management ability.

The cooperatives of this segment also had other produce: wine, almonds, supplies, credit and an agro-shop.

5.3.2 Production

These cooperatives sold slightly more produce in their own packaging than in bulk, indicating some marketing focus in this segment. The majority had an oil production between 25 and 250 metric tons.

A low appreciation of the importance of quality standards was observed. Only a couple cooperatives had ISO 9000 certification. In contrast, most large commercial companies involved in food distribution have these ISO norms, with the objective of maintaining a high uniform quality and satisfying consumer requirements (Di Vita, 2002).

5.3.3 Sales

Sales in this segment were quite different from the first segment. This segment conducted commercial activities in the national market and in the international market as well, although with less intensity.

Some of these cooperatives had conducted a marketing campaign and which usually had been developed by external professionals. The objectives of these campaigns were to increase sales and to know their clients' requirements. This indicates some marketing focus.

It is important to note that these cooperatives considered that the most important elements in sales were quality, the kind of oil and the official certification of origin. This indicates that the management focus was in production, although to a lesser degree than in the first segment, with this segment having a particular concern about the official certification of origin.

These cooperatives conduct commercial activities in a wide range of products: canned olives, vinegar, wine, and aromatic oils... This is a productive structure quite similar to the first segment.

5.4 Characteristics of Segment 3

This segment was comprised of large cooperatives with professional management and an online presence. It included 15 cooperatives and represented 21.4 percent of the sample. It was the smallest group.

5.4.1 General characteristics

The sector was formed by medium-sized cooperatives and large cooperatives, with 53.3 percent having 50-200 associates, and 33.3 percent having 500-1000 associates. This was the segment with the greatest proportion of large cooperatives. In spite of being the smallest cooperatives, their management capability is weak, although better than the other two segments. A quarter of the cooperatives in this group did not have a manager. In the rest of the cases they were hired. In the remainder a low percentage were associates. This was the segment with the greatest proportion of hired managers. Moreover, this group had the highest level of managers with a university degree. According to this situation, the economic control was performed mainly by external auditors.

The cooperatives in this sector were the most diversified; in addition to olive oil, 80 percent of them produced almonds, had a supply section, or had a shop. Although the average size of these cooperatives was high, the production was not as high as in other sectors.

5.4.2 Production

The changes made by these cooperatives in recent years were mainly concerned with upgrading equipment and they stated that the changes have produced a radical change in their way of doing things.

They sell more with their own packaging than in bulk. A majority had a turnover of less than 1.2 million euros. This was the segment with the smallest turnover. On one hand, a majority of them had a production of less than 100 metric tons, and on the other hand, a quarter of them produced more than 250 metric tons.

This was the sector with the highest levels of both permanent and temporary staff. The cooperatives in this segment were thus larger entities than in other segments.

5.4.3 Sales

The markets of these cooperatives were quite different from those of other segments. The markets were more open, with 33.3 percent operating in the national market and 20 percent operating in international markets.

In the national market, the main destinations were the local area and Catalonia. In particular, Madrid was a common destination. Internationally, Italy was the most common international destination.

This segment undertook more research, with 60 percent having conducted some marketing research. The cooperatives' managers developed the campaigns in most cases. The objectives of these campaigns were increasing sales and making people aware of the product. Therefore, the management is highly involved in marketing and less focused on the product.

Apart from olive oil, these cooperatives also conducted commercial activities in canned olives, vinegar, wine and cava. This was the segment that most frequently used the Internet as a distribution channel.

Only half of these cooperatives thought that their communication activities had been successful. Half of these cooperatives had their own website, but they updated it only sporadically. Despite being the group with the greatest presence on the Internet, they were there for image purposes only. Table 3 summarizes the main characteristics of each segment.

6. Positioning of the cooperatives

A factorial analysis of the principal components was performed from the scores recorded for the characteristics of the sector. This reduced the whole group of variables into a smaller number of mutually correlated components. As a result, a series of quantitative indices was obtained.

The correlations between the variables demonstrated a degree of commonality in their explicative capacity. The matrix of correlations was submitted to two tests: Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) index.

The Bartlett statistic, which had a value $\chi^2 = 430.088$ with a critical significance level of 0.000, made it possible to reject the null hypothesis of non-correlation between the observed variables. The Bartlett test confirmed the existence of lineal dependence between the variables and justified continuing with the procedure.

An exploratory factor analysis was carried out and three factors or components were obtained. The Kaiser criterion was used in their elaboration in such a way as to conserve only those factors that presented *eigen* values of one or greater. The first three factors retained 64.2 percent of the initial variance—which represents a good proportion given that each of the new components provided independent (and therefore unrepeated) information.

With the rotated component matrix (Varimax rotation method) it was possible to obtain weightings for each factor in each of the variables. In Table 4, the first column presents items with highest saturations on the first factor; the second column presents those mainly saturated on the second factor; and the last column is formed by items more closely related with the third factor. Each factor had a high correlation with one group of variables and a low correlation with the rest—thereby providing a more appropriate interpretation of the initial factors.

The factors derived from the analysis were assigned a 'label' and an index (or score). This index was the arithmetic average of the items that formed it. The variables with high saturations (which appear in *italics* in the previous rotated component matrix) corresponded to the following factors:

Factor 1 Orientation towards marketing and quality management: this is related to marketing research attitude, presence on the Internet, presence in external markets, the establishment of guarantee of origin, and a quality certification (score 3.72 on scale of 1–5).

Factor 2 Perceived risk: this is related to risk perceived with the entry of new countries to the EU, fear of diminished subsidies, and concern regarding lack of qualified personnel (score 3.75 on scale of 1–5).

Factor 3 Closed mind: this is related to the general business mentality of the sector and attitudes towards the promotion and communication activities of the sector (score 3.44 on scale of 1–5).

The three factors all scored above three (the mid-range value of the measurement scale of 1–5), but all three scored values removed from the extreme values. This suggests that there is still room for increase in the first factor, and room for a decrease in the other two factors.

7. Map of the resulting segments in the detected factors

The three segments were then situated with respect to the three factor axes. This enabled an analysis of the attitudes of the different segments (see Figures 1, 2, and 3).

It should be noted that the segments are all located in the same relative place in Figures 1 and 2. Figure 1 shows that Segment 1 perceived a significant risk from new entries to the EU—causing a decrease in subsidies and a lack of qualified personnel. This group also had a low level of marketing and quality orientation. Segment 3 is on the opposite side. This segment attached importance to marketing research, a presence on the Internet, the enhancement of external markets, a guarantee of origin, and quality certification. The members of this segment are situated in an intermediate situation in terms of risk perception. Segment 2 did not consider that newcomers to the EU pose a risk; however, the members of this segment did not show a positive attitude towards quality management or commercialization.

The situation of the three factors in Figure 3 is similar to Figure 1. Segment 3 had a very positive attitude towards quality and marketing management. However, the members of this segment considered that the sector is rather ‘closed-minded’. Segments 1 and 2 were aware that the sector ‘mentality’ should be more open, but their management was not focused on quality and commercialization.

Figure 3 shows relative positions of the segments that confirm the findings noted above. Segment 1 was worried about the changes in the EU and about the lack of competent personnel. The segment also thought that the sector is open-minded. Segment 2 is close to the origin of the co-ordinates. The members of this segment did not perceive a risk; nor did they think that the mentality is closed. They attached significant importance to communication and promotional activities. The third segment is in an intermediate situation.

It can be inferred that the more open-minded cooperatives faced the future in different ways. On the one hand, there were cooperatives that had little perception of risk; on the other hand, there were some cooperatives that considered the potential loss of subsidies and the entry of new countries into the EU as representing risks for the sector. The ‘closed-minded’ cooperatives perceived that there is a risk, but they did not attach importance to it.

The open-minded cooperatives were not focused on quality. In this group there were cooperatives that foresaw some risk that eventually could affect them. It can be assumed that they will make some change to adapt to the new markets. There are other open-minded cooperatives that did not see any risk; it cannot be expected that they will make any change, and they might well find themselves in a critical situation in future markets.

In contrast, the close-minded cooperatives were orientated towards market and quality. They detected some risks and believed that this orientation might help them to survive.

8. Conclusion

The olive oil industry consists of a large number of companies, most of them small. The entrepreneurs in this industry do not have adequate training and, given the advanced average age of most farmers, they are unlikely to obtain the required training in the future.

The problems that exist in contemporary cooperatives require more professional solutions. Olive oil cooperatives of adequate size should be managed by professionals with the ability to manage with efficiency. Smaller cooperatives should join together to hire a professional manager.

The cooperatives attached importance to three issues. The first was cost accounting (with a score of 4.39 on a scale of 5). The second was the possibility of losing subsidies (with a score of 4.12). The third was the enhancement of export markets (4.09).

The cooperatives do not see a promising future for the industry. In fact, they perceive themselves as becoming increasingly uncompetitive against the big companies that will dominate the market.

An important contribution of this study is the sector analysis of the behaviour of the cooperatives. Three segments were identified. The *first* consists of small cooperatives of local scope, with a closed-mind attitude and a lack of a professional approach. Most of these did not have a manager. Until now, these cooperatives have depended on EU subsidies, and they are therefore worried about losing these subsidies. Nevertheless they are not worried about the sector’s future because they can sell their production to loyal clients. They do not therefore consider that being associated is important. Nevertheless they worry about new countries entering the EU.

The *second* segment consists of medium-sized cooperatives with limited scope and limited market focus. This was the largest segment. These cooperatives are more focused on the market, and they do not see newcomers to the EU as a threat. Nevertheless, they demonstrate a lack of professional management, despite being in external markets. They consider that external markets should be enhanced, and that the Internet should be used to access new markets.

The third group consists of large cooperatives with professional management and an online presence. This is the smallest group of the sample. They are the largest cooperatives, quite diversified, and with a presence in

international markets. They are worried about losing subsidies. Due to their size, they need more financing and their projects are more ambitious. They believe that external markets must be enhanced, and they undertake advertising and marketing campaigns.

Another finding in this study were the factors that determine the behaviour of these segments and the cooperatives in general. These factors are: (i) orientation towards marketing and quality management; (ii) perceived risk; and (iii) a closed mind. Analysing the cooperatives' behaviour with respect to these factors, it was noted that segment 1 perceives risk in the sector—due to the entry of new countries into the EU and the attendant risk of losing subsidies and lacking qualified personnel. Segment 3 attaches more importance to marketing research, Internet presence, enhancing external markets, establishing guarantee of origin, and quality certification. Segment 2 does not see a threat in the newcomers to the EU; neither do they focus on quality management or commercialisation.

References

- Aldenderfer, M.S., & Blashfield, R.K. (1984). *Cluster analysis*. Sage Publications. USA.
- Bahamonde, E. (2003). *Las cooperativas agrarias*, Ábaco, n36, 81-87.
- Barea, J., & Monzón, J.L. (1992). *Libro Blanco de la Economía Social en España*. Ministerio de Trabajo y Seguridad Social, Madrid. Spain.
- Bel, P. (1997). Comportamiento de las sociedades cooperativas agrarias en un mercado competitivo. *Cooperación Agraria*, 6, 90-91.
- Blashfield, R. (1976). Mixture model tests of cluster analysis: Accuracy of four agglomerative hierarchical methods. *Psychological Bulletin*, 83, 377-388.
- Caballer, V., Juliá, J.F., & Segura, B. (1987). *Las cooperativas agrarias valencianas: un análisis empresarial*. Ed. AEDOS. Madrid. Spain.
- Carrasco, M. (1993). *La nueva estructura de fondos propios para las cooperativas agroalimentarias*. Junta de Andalucía. Consejería de Trabajo. Dirección de Trabajo Asociado y Empleo. Huelva. Spain.
- Crescimanno M., Di Marco S., & Guccione G. (2002). Production and trade marketing policies regarding organic olive oil in Sicily. *British Food Journal*, Vol.104. Iss:3/4/5. 175-186.
- Di Vita, G. (2002). *Gli Strumenti di qualità aziendali: uno studio sull' applicazione delle norme UNI EN ISO 9000 nel sistema agroalimentare in Sicilia*. Università degli studi di Catania.
- Domingo, J., & De Loma-Ossorio, E. (1991). *Las almazaras cooperativas en Andalucía*. Cámara de Comercio e Industria de Jaén.
- Farsi, M., Filippini, M., & Greene, W. (2006). Application of panel data models in benchmarking analysis of the electricity distribution sector. *Annals of Public and Cooperative Economics*. September, vol. 77, iss. 3, 271-290.
- Fortuny, J. (2002). *Metodología del análisis sectorial en el sistema agroalimentario, aplicada al subsector oleícola catalán. Evaluación de la competitividad, el progreso tecnológico y la eficiencia económica empresarial*. Doctoral Thesis. University of Lleida. [Online] Available: <http://www.tdx.cat/TDX-0201105-120902>.
- Garcia, E. (2002). *Almazaras cooperativas. La necesidad de una dirección adecuada*. Publicaciones de la Universidad de Jaén y Cajasur. Spain.
- Gil, J. M., Dhehibiy, B., Kaabiaz B., & Anguloz M. (2004). Non-stationarity and the Import Demand for Virgin Olive Oil in the European Union. *Applied Economics*. September, vol. 36, iss. 16, 1,859-69.
- Gómez, J.D. (2004). Las cooperativas agrarias de la Comunidad Valenciana frente al proceso de globalización, *Cuadernos de geografía*, 75, 1-15.
- Gómez-Limon, J.A., Casquet, E., & Atance, I. (2003). Análisis económico-financiero de las cooperativas agrarias de Castilla y León. *Ciriec- España*, 46, 151-189.
- Hall, R. (1991). *Organizations: structures, processes and outcomes*. Prentice Hall. Englewood Cliffs, New Jersey.
- Handy, C.B. (1985). *Understanding organization*. Penguin, London.
- Hartigan, J. (1975). *Clustering Algorithms*. John Wiley & Sons, New York.
- Hartigan, J., & Wong, M. (1979). Algorithm AS139: A k-means clustering algorithm. *Applied Statistics*, vol. 28,

100-108.

Hoogveld, A., & Jurjus, A. (1990). *Olive oil in Spain: strategies and prospects*. Institute for Social and Behavioral Sciences, Nijmegen. Holland.

Julià, J.F. (1993). La economía social y el cooperativismo agrario. *Ciriec-España*, 15, 43-68.

Julià, J.F. (1994). El cooperativismo agrario. *Papeles de Economía Española*, vol. 60-61, 243-250.

Lewis, C.W., Miller, J.W., & Namm, M. (2002). Cost reduction opportunities for distribution cooperatives through electronically-delivered products and services. *Management Quarterly*, winter, 29-40.

López, A. (1982). *Las cooperativas olivares andaluzas. Una realidad problemática*. Monte de Piedad y Caja de Ahorros de Córdoba. Córdoba. Spain.

Menguzzato, M., & Renau, J.J. (1991). *La dirección estratégica de la empresa. Un enfoque innovador del management*. Editorial Ariel, second edition. Barcelona. Spain.

Mintzberg, H. (1979). *The structuring of organizations*. Prentice Hall.

Montegut, Y., Cristóbal, E., & Marimon, F. (2007). Caracterización de las almazaras cooperativas catalanas. *Revesco*, 93, 68-97.

Morales, A.C., Romero, T., & Muñoz, M^a D. (2003). Causas, intereses y desarrollo histórico de la acción colectiva empresarial en el ámbito agrario: el caso del cooperativismo en el sector oleícola. *Ciriec- España*, 46, 117-150.

Morales, A.C. (2007). *Cooperativismo y desarrollo rural en Andalucía*, in Sanz Cañada (ed.): El futuro del mundo rural, sostenibilidad, innovación y puesta en valor de los recursos locales, 125-150. Ed. Síntesis, Madrid. Spain.

Mozas, A. (2004). La violación del modelo de gestión democrático en las cooperativas oleícolas. *Ciriec- España*, 48, 167-191.

Oltra, M. J. (1992). Caracterización empresarial de las bodegas cooperativas de la comunidad valenciana. *Cuadernos de Trabajo de Ciriec-España*, 19.

Pérez, F. (1997). *Contabilidad y organización, una aplicación a las cooperativas olivares*. Tesis Doctorals Thesis Collection. ETEA Publications. Córdoba. Spain.

Scarpa, R., & Del Giudice, T. (2004). Market Segmentation via Mixed Logit: Extra-virgin Olive Oil in Urban Italy. *Journal of Agricultural and Food Industrial Organization*, vol. 2 (1), 1-18.

Segura B., & Oltra, M.J. (1995). Eficiencia en la gestión de cooperativas agrarias de comercialización. *Investigación Agraria. Economía*. Vol. 10(2), 217-232.

Senise, O., Torres, F.J., Parras, M., & Murgado, E. (2008). Factores inductores de un comportamiento medioambientalmente sostenible: el caso de las cooperativas oleícolas jienenses. *Ciriec- España*, 61, 157-177.

Silverman, B.M. (1986). *Density Estimation for Statistics and Data Analysis*. New York: Chapman and Hall.

Siskos, Y., Matsatsinis, N.F., & Baourakis, G. (2001). Multicriteria analysis in agricultural marketing: the case of French olive oil market. *European Journal of Operational Research*, Vol. 130, 315-31.

Torres, F.J. (1998). *Las cooperativas jienenses y la comercialización de los aceites de oliva: una perspectiva estratégica*. Instituto de Estudios Jienenses de la Universidad de Jaén. Jaén. Spain.

Tous, J., & Romero, A. (1993). *Variedades del olivo*. Ed. "La Caixa" Foundation. Barcelona. Spain.

Tous, J., & Romero, A. (1994 a). La nova olivicultura de Catalunya. *Bulletí informatiu. Institut de Recerca i Tecnologia Agroalimentàries*, 43, July.

Tous, J., & Romero, A. (1994 b). *Aceites catalanes. Denominaciones de Origen*. Olivicultura Jornadas Técnicas. Fundació La Caixa and Agrolatino. Barcelona. Spain.

Tsakiridou, E., & Mattas, K. (2005). Organic Olive Oil Demand Marginal Effects. *International Journal of Economic Research*. June, vol. 2, (2), 197-206.

Vargas, A. (1993). *Las almazaras cooperativas onubenses. Una propuesta de actuación ante la crisis*. Publicaciones del Monte de Piedad y Caja de Ahorros de Córdoba. CAJASUR. Córdoba. Spain.

Vargas, A. (2002). *Claves para el desarrollo del cooperativismo agrario. Concentración empresarial y Asociacionismo*. Huelva University. Huelva. Spain.

Vargas, A., & García, E. (2003). La medición del desempeño de las sociedades cooperativas agrarias. Perspectiva de los directores-gerentes de las provincias de Huelva y Jaén. *Ciriec-España*, 46, 85-116.

Vidal, F. (1999). *Eficiencia económica de las cooperativas de comercialización hortofrutícola de la Comunidad Valenciana*. Doctoral Thesis, ETSIA, Valencia. Spain.

Vidal, F., Del Campo, F., & Segura, B. (2000). Caracterización empresarial del cooperativismo de comercialización hortofrutícola de la Comunidad Valenciana: un análisis provincial. *Ciriec-España*, 34, 71-94.

Notes

Note 1. The “guarantee of origin” is a certification provided by an official entity that certifies that the olives come from a certain geographical area

Note 2. Throughout the article, the word “associates” is used to mean the farmers who join the cooperative.

Note 3. A second-degree cooperative is another cooperative whose associates are cooperatives. On the other hand, a federation is not a cooperative, but an entity whose purposes are to protect the interests of the cooperatives (subsidies, help for the bureaucracy the cooperatives have to manage...).

Note 4. Most of the Spanish agrarian cooperatives are multifunctional and commercialize several products, (Hoogveld & Jurjus, 1990).

Note 5. The “Libro Blanco de la Economía Social en España” (Barea & Monzón, 1992) states that both the olive oil cooperatives and all the agrarian cooperatives are of small size—not large enough to face the requirements of the market.

Table 1. General characteristics of the sampling technique

Population	Cooperative managers of the olive oil sector of Catalonia (Spain) (census of 137 cooperatives).
Sample	70 questionnaires with a margin of error of ± 8.3 percent and a confidence level of 95.5 percent ($k = 2$ and $p = q = 0.5$).
Procedure	Simple random sample.
Date of the fieldwork	April-June of 2006.
Administration of the survey	Personnel interviewed through a semi-structured questionnaire.
Information collected	General characteristics of the cooperatives, information about production, finances and sales, valuation of the general characteristics of the sector.

This general table shows the main characteristics of the sampling technique

Table 2. Attitudes towards the sector

1	Losing subsidies from the EU will directly affect my cooperative	4.12
2	Being on the Internet is important for the companies of the sector	3.81
3	Professional management is better than family management	3.48
4	A cooperative legal entity is better than a commercial legal entity	3.45
5	Quality systems such as ISO 9000 improve cooperative management	3.56
6	Being in a guarantee of origin enables commercialization	3.53
7	Having cost accounting enables management of the cooperative to be conducted correctly	4.39
8	Marketing research assists entry into new markets	3.66
9	It is important to be associated with other cooperatives	3.50
10	The entry of new countries into the EU is a threat	3.36
11	The managerial mentality of the sector is 'closed'	3.60
12	Promotion and communication activities in this sector are not effective	3.34
13	It is difficult to find qualified personnel	3.82
14	Export markets should be promoted	4.09
15	Having a quality accreditation facilitates access to new markets	4.02
16	More training is required for employees working in cooperatives	3.86
17	The future of the sector shows considerable promise	3.14

This table includes the battery of questions that was used for evaluate the attitudes towards the olive oil cooperative sector. The questions were developed from a careful review of the extant literature and from interviews with professionals and experts in the sector. Respondents were asked to reply on a *Likert* scale (from '1' = 'strongly disagree' to '5' = 'strongly agree'). The average score for each question was then calculated. The results are shown in this table.

Table 3. Main characteristics of the segments

	Segment 1	Segment 2	Segment 3
Description	<i>Small cooperatives of local scope, 'closed minded', and non-professional approach</i>	<i>Medium-sized cooperatives, with limited scope and limited market focus</i>	<i>Large cooperatives, with professional management and online presence</i>
Size	27.2 percent of the sample	51.4 percent of the sample	21.4 percent of the sample
Number of associates	Small and medium	Medium	Medium and large
Relationship with the manager	Little professionalized management (majority do not have a manager)	The manager is an associate	Hired manager
Manager's studies	Secondary studies	Specific education	University degree
Other sections	Wine	Almond	Almond, supplies, and shop
Packaging	In bulk	Packaged	Packaged
Turnover	-	-	Low
Production	High production	25-250 metric tons	Less than 100 metric tons
Personnel	Small number of personnel	1-5 workers	Large personnel
Exportation	Closed	-	Opened
Financing	Own credit section	Financing entities	Own credit section
Liquidation system	Gross margin	Gross margin	Market prices
Commercial scope	Local	Local and national	National
Marketing	Do not undertake marketing campaigns	25 percent of campaigns are designed by external professionals	The segment that undertakes the most campaigns
Distribution	Do not use Internet	10 percent use the Internet	The segment that uses the Internet the most
Communication	Radio, press, and national fairs	Radio, press, and national fairs	Press, catalogue, radio. The segment that uses the Internet the most
Success of the campaign	50 percent believe campaigns are successful	Confident with marketing	The segment that is least confident with marketing
Reasons for failure of campaign	Unnecessary. They have loyal clients	Lack of budgetary resources	Lack of budgetary resources
Main uses of Internet	Send and receive data, research, financial transactions and e-mail	Send and receive data, information research, e-mail and transactions with administration	Send and receive data, research, e-mail. The segment that makes the greatest use of the Internet for sales
Own website	1/5	1/3	1/2
Attitudes towards problems facing the sector	Difficulties finding qualified personnel Worried about losing subsidies New entries to EU are a threat Cost accounting is important Poor future for the sector No importance attached to association with other cooperatives	Cost accounting is important Having a quality accreditation enables access to new markets Exports must be enhanced Worried about training Newcomers to the EU are not a threat	Worried about losing subsidies Cost accounting is important Worried about training Exports must be enhanced

This third table summarizes the main characteristics of the three segments

Table 4. Matrix of rotated components

	Factor 1	Factor 2	Factor 3
Marketing research assists entry into new markets	0.799	0.225	0.118
Export markets should be promoted	0.736	0.167	0.175
Being on the Internet is important for the companies of the sector	0.706	–	–
Quality systems such as ISO 9000 improve cooperative management	0.668	0.191	–
More training is required for people working in cooperatives	0.659	–	–
The future of the sector shows considerable promise	0.610	–0.188	–
Having cost accounting enables management of the cooperatives to be conducted correctly	0.593	–	0.214
Being in a guarantee of origin enables the commercialization of olive oil	0.550	–	–0.412
Having quality accreditation facilitates access to new markets	0.502	–0.464	0.423
It is important to be associated with other cooperatives	0.483	–0.304	0.185
Professional management is better than family management	0.165	–	–0.117
It is difficult to find qualified personnel	–	0.812	–
The entry of new countries into the EU is a threat	–	0.776	0.133
Losing subsidies from the EU will directly affect my cooperative	0.226	0.590	0.260
A cooperative legal entity is better than a commercial legal entity	0.401	0.421	–0.148
The managerial mentality of the sector is ‘closed’	–	0.224	0.803
Promotion and communication activities in this sector are not effective	0.151	–	0.697

Table 4 shows the matrix of rotated components that was used to determinate the different factors. These factors are used in positioning the three segments.

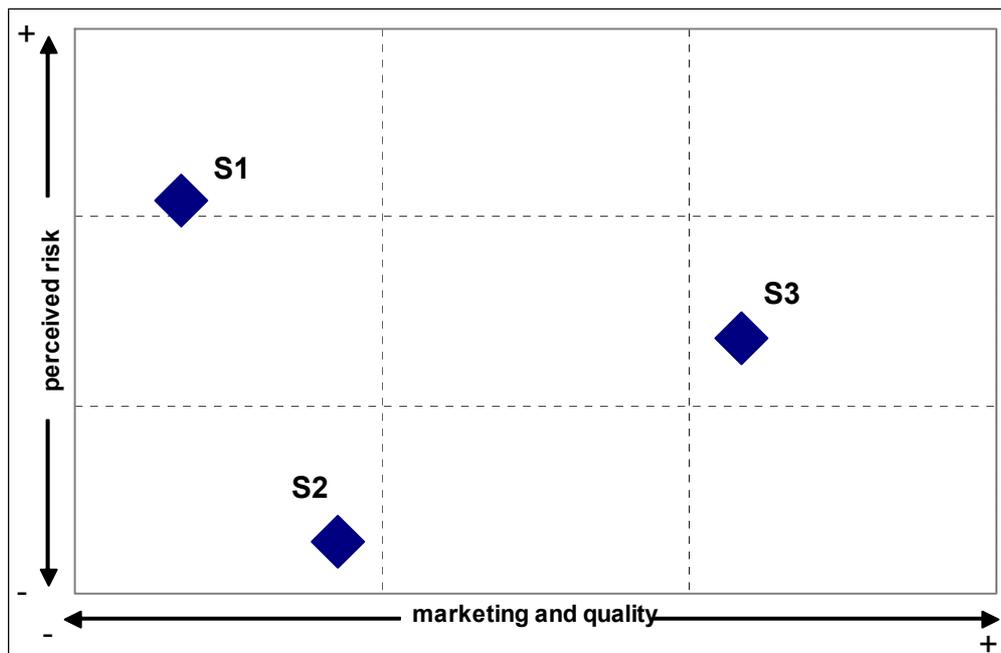


Figure 1. Positioning of factor 1 and factor 2

This first figure shows the relative position of the different segments with Perceived Risk and Marketing and Quality dimension.

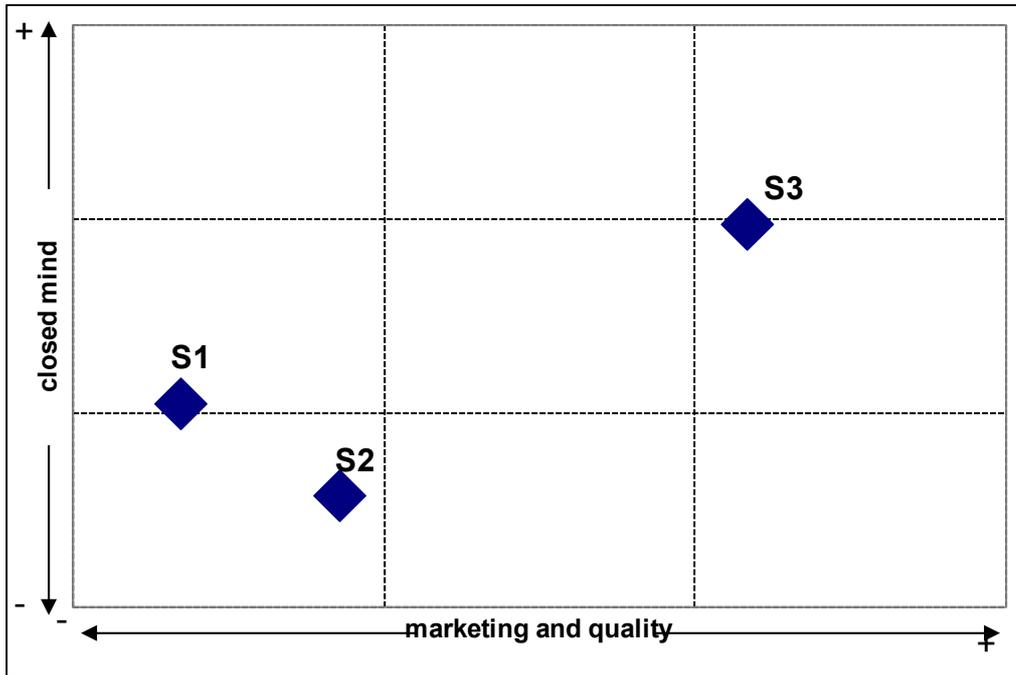


Figure 2. Positioning of factor 1 and factor 3

This second figure shows the relative position of the different segments with Closed Mind and Marketing and Quality dimension.

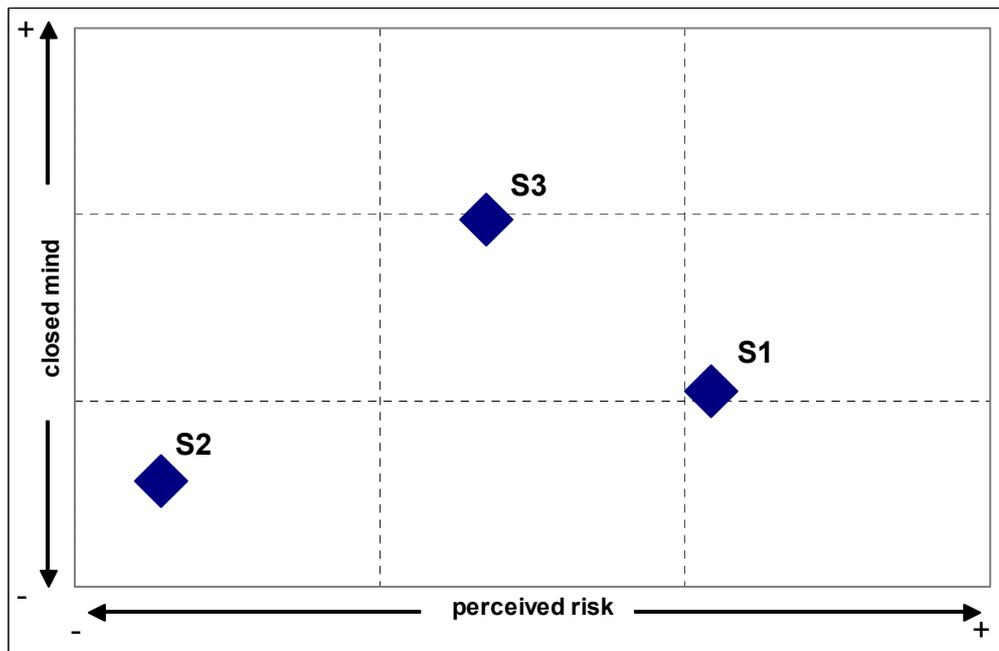


Figure 3. Positioning of factor 2 and factor 3

This third figure shows the relative position of the different segments with Closed Mind and Perceived Risk dimension.