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The role of Producer Organizations in supply concentration and marketing: a comparison between European Countries in the fruit and vegetables sector

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Abstract. The Fruit and Vegetables (FV) sector has a relevant and increasing economic value in the EU, accounting for about 20% of the total value of agricultural production; the Countries with higher significance are Greece, Spain and Italy (from 25% to 35%). Nevertheless the producers are negatively affected by structural problems related to the small size of the farms and scarce ability to concentrate and promote production. For this reason the 2007 reform of the CMO for fruit and vegetables provides measures in favor of growers who are members of Producer Organizations (POs). In fact, the present rate of organization of the sector varies considerably across the EU Countries, but in general it is considered to be too low (around 35%). This paper carries out a comparative study of the capability of POs to concentrate supply and promote the production of their members in 3 important producing Countries: Italy, Spain and France. The analysis is based on operational programs prepared by POs to obtain financial aid from the European Commission and considers production value distribution and composition, marketing channels (supermarkets, wholesale, small retail and processing) and measures provided to support farmers in production, marketing and to protect the environment.

Keywords: Fruit and vegetables Common Market Organization, Producer Organizations, Operational programs, supply concentration, product quality, marketing channels.

1 Introduction

Producer Organizations (POs) have played a fundamental role in the EU fruit and vegetable sector since 1972, with the establishment of the Common Market Organization (CMO). Since then, the CMO has undergone various reforms: in 1996, 2003 and in 2007 and the role of POs has changed accordingly. For a long time, POs main objective has been the management of withdrawals, and little attention was paid to issues related to products marketing. With the 1996 reform it was introduced the idea that, given the increasing concentration of the retail sector, the grouping of supply was a necessity to reinforce the position of the producers on the market. However, only recently, with the inclusion of the CMO in the single payment scheme by means of the 2007 reform, the focus has been shifted mostly on the improvement of market orientation and competitiveness of producers.

Actually, many factors are challenging the competitive conditions of European fruit and vegetables producers, which experience low price levels, high price variability and, therefore, reduced profitability.

On the supply side, the most relevant features of the sector are the specific product characteristics (seasonality, freshness and perishability), the heterogeneity and the fragmentation of the agricultural production. Perishability causes shipping costs to be high and requires efficient logistic processes, to move the product through the chain as rapidly as possible and to maintain valuable quality and safety characteristics. Suppliers fragmentation constraints the amount of investments and the reduced production volumes do not allow them to access large final consumption markets.

On the demand side, there are various marketing systems in which different economic agents act: middlemen, packers, shippers, processors, wholesale markets, traditional retailers and modern large distributors. However, the main drivers that are shaping the sector in the last years concern the increasing

concentration and the strategic conduct of large retail chains. On one hand, distributors adopt price competition policies to attract consumers, on the other hand they implement procurement practices based on tight supply requirements and product quality.

The purpose of the study is to assess POs performance, as related to their capability to concentrate producers' supply, to access different types of marketing channels and to implement supporting actions in favour of their members. The analysis is based on a comparative approach among three main producing Member States: France, Italy and Spain.

In order to do that, at first we will provide a general background of the sector, considering the main issues at stake in the agricultural production and in the marketing stage across Europe. Then, we will give a brief overview of the main objective and instruments of POs in the framework of the CMO for fruit and vegetables. As a second step of the study, we will recall and discuss the main economic issues related to the subject, by means of a literature review in the fields of firms' strategy and market structure, supply concentration, product quality, firms' size and marketing channels choice. Thirdly we will present the dataset provided by the European Commission containing the information on the POs in the three target Member States, as well as the methodology chosen to carry out the analysis. Finally we will assess the performance of the POs in France, Spain and Italy, by analyzing their evolution and structure and their Operative Funds and Operative Programs.

2 Background: the fruit and vegetables sector in the EU

2.1 Agricultural production

Even if it accounts only for 3% of the Utilized Agricultural Area (UAA) of the EU, the fruit and vegetable sector holds a very important place in European agriculture: the value produced borders the 46.5 billion euro in 2007 in the UE-27, approximately one quarter of the value of all crop productions.

The fruit and vegetable sector is particularly developed in the Mediterranean countries. The weight of the sector in the total agricultural production is particularly significant in Spain (27.6%), Greece (27.1%), Cyprus (28.1%), Malta (27.8%) and Italy (24.4%). The more continental countries in which the sector has a significant importance are: Belgium (15.8%), Poland (12.3%), Hungary (12.3%), the Netherlands (12.9%), the United Kingdom (10,5%) and France (9,9%).

In terms of harvested production the main vegetables in 2007 were tomatoes (around 15.3 million tons), carrots (5.4 million tons) and onions (5.1 million tons), whereas the main fruits were apples (around 9.8 million tons), oranges (around 6.2 million tons) and pears (around 2.6 million tons).

Production of fruit and vegetable is highly concentrated in just a few Member States (Table 1): Italy and Spain account for the majority of tomatoes (63.4 %), oranges (83.2 %) and pears (52.9 %) produced in the EU-27 in 2006, underlining favorable climatic and topographical conditions. A little over half (55.5 %) of apple production was concentrated in Poland, Italy and France. Similarly, a little over half (52.7 %) of onion production was concentrated in Spain, the Netherlands and Poland.

Table 1 – Main producers of FV in the EU-27 (% share of EU-27 total harvested production)

Tomatoes	Carrots	Onions	Apples	Oranges	Pears
Italy (40.1%)	Poland (15.7%)	Spain (22.8%)	Poland (19.7%)	Spain (48.1%)	Italy (32.0%)
Spain (23.2%)	United Kingdom (11.9%)	Netherlands (18.2%)	Italy (18.0%)	Italy (35.1%)	Spain (20.8%)
Greece (9.8%)	France (11.8%)	Poland (11.7%)	France (17.8%)	Greece (12.8%)	Belgium (9.5%)
Portugal (6.3%)	Italy (11.7%)	Italy (7.5%)	Germany (8.1%)	Portugal (3.5%)	France (8.3%)
France (4.7%)	Netherlands (10.2%)	United Kingdom (7.4%)	Spain (5.6%)	Cyprus (0.4%)	Netherlands (7.8%)

Source: Eurostat (Agricultural products statistics)

As far as agricultural production structures are concerned, in 2005 there were nearly 4.3 million holdings producing fruit and vegetables in the UE-27 (1.9 million in the UE-15).

The agricultural holdings specialized in horticulture and fruit growing are mainly located in the Southern European Member States: Spain has 24% of the exploitations of the UE-27, Poland 18%, Italy 17%, Romania 10%, Greece 8%.

These are, in general, small sized holdings: on average less than 10 hectares in terms of Utilized Agricultural Area (UAA). In the UE-15, more than half (55%) of the farms specialized in horticulture or fruit growing has a UAA lower than 2 ha. In most of the Member States that joined the EU in 2004 and 2007, the average size of each holding is less than 1 hectare.

The number of farms specialized in fruit and vegetables is decreasing in the UE-27, especially in the Member States of the UE-15. Between 2003 and 2005 in the UE-15, the number of holdings specialized in horticulture fell by approximately 11%, and the number of specialized fruit-bearing farms diminished by almost 9%.

Combined with the numerical reduction of farms, the sector is experiencing an internal reorganization, with the diminution of full field productions in favor of the increase of greenhouses.

Table 2 – Number of fruit and vegetables holdings and their average size (2005)

	Fresh vegetables, melon and strawberry plantations			Fresh fruit and berry plantations			Citrus plantations		
	Number of holdings	Share in EU-27	Average size of holding	Number of holdings	Share in EU-27	Average size of holding	Number of holdings	Share in EU-27	Average size of holding
	(units)	(%)	(ha)	(units)	(%)	(ha)	(units)	(%)	(ha)
France	41.390	2,3%	5,9	40.250	2,2%	4,8	2.910	0,8%	1,3
Italy	137.790	7,7%	1,7	254.710	13,8%	1,6	84.240	24,4%	1,4
Spain	150.760	8,4%	1,9	259.080	14,0%	3,1	129.430	37,4%	2,2

Source: Eurostat (Eurofarm)

2.2 Marketing systems

The internationalization of markets (particularly supply competition) and the increased emphasis on value-added characteristics are two important features that have changed the marketing and distribution system in the sector. These trends are intensifying day by day and have profound impacts on fruit and vegetable marketing dynamics as well as on the competitive advantage of the economic agents.

On the demand side we observe relevant modifications in functional, characteristics and products terms. In functional terms, demand has shifted from unprocessed or lightly processed products, toward processed and prepared foods, and value-added fresh foods (such as packaged and shipped fresh fruit). As for the characteristics of demand, consumers pay more attention to food safety, packaging, taste and flavor, freshness, intra-year stability of access, “exoticness” (greater distance from origin), paradoxically combined with greater demand for authenticity (local and traditional). As far as product composition is concerned, we observe diet diversification from staples (cereals, pulses, roots, tubers) toward fruits and vegetables and meat, fish, and dairy products.

Thus, in about two decades, marketing of fruits and vegetables has undergone profound changes, moving from a traditional model based on a large number of operators and on simple transactions (daily, price, class and volume specifications) between shippers and buyers in wholesale markets, to a system involving a limited number of operators of larger economic size and complex transactions (including private standards, quality and packaging, marketing services, etc.), implemented within medium-term contracts.

As a result of the current trends, the FV supply chain presents a complex and diversified organizational structure in each EU country. This depends on multiple factors: the nature of the produce, the characteristics of the production structures, the level of innovation technology, and the role of actors along the supply chain. The actors play different roles according to structural and operational features such as the volume of agricultural production marketed, the fragmentation of farms, the development of modern distribution and retail systems, which require performing organizational systems, adequate size and logistic platform.

France is an important producer of fresh fruit and vegetables. Procurement of fresh produce has historically been based on a strong regional wholesale market structure, which exists to this day but with a less important share. Supermarkets have established buying and logistical ‘platforms’ at these locations. The rate at which central purchasing is implemented depends, in part, on the organizational and ownership structure of the retailer concerned. French retailers have developed quality assured private brands at the national level.

Italy is one of the most important producers of fruit and vegetables characterized by a hyper-fragmentation of the agricultural sector and a high presence of middlemen and cooperatives along the supply chain. Supermarket chains represent about 52% of retail trade in fruit and vegetables sector. These percentages are very low if compared with other food sectors, in which supermarket chains represent around 70% of retail trade (Ismea, 2008). The role of middlemen is important, too, considering that the supply chain organized by producers Organization represents only about 35% of the value of production.

The supply chain of fruit and vegetables in Spain is fragmented as well, almost equally split between traditional and modern marketing systems. In fact, traditional retail accounts for 42% of the sales of vegetables in Spain, followed by large distribution chains (40%). A similar pattern is observed in the fresh fruit sector, in which small retailers market 45% of the total value of product, and modern distribution 42%. Besides farmers and retailers, the sector includes a very wide range of economic agents (about 10.000) who perform various operations along the supply chain, related to product sorting, conditioning, processing, transport, etc.

However, in spite of the differences existing in the various marketing systems, we must acknowledge that there is a common trend affecting the food sector as well as the fruit and vegetables sector in most EU Countries. The common feature is represented by concentration of the distribution channel and the development of supermarket chains and large retailers.

Large scale retailers chains account for 70-90% of household food shopping in northern European Countries, such as Germany, Denmark, Netherlands, United Kingdom, Sweden and France. In France, the eight major retailers account for 90% of food retail and procure via five purchase offices. In both Sweden and Finland the top three importers - wholesalers account for 80% of food sales. In the Netherlands the top three retailers account for 60% of food sales and the top five account for 75%, while in Germany the top five retailers account for 62% of national food sales.

Concentration is also increasing in Southern EU countries, such as Greece, Italy, Spain, and Portugal, although at a lower pace.

As far as fruit and vegetables sales are concerned, since 1995 the share of large retailers has increased from 50% to 75% in the United Kingdom, from 60% to 75% in France, from 20% to 52% in Italy and from 30 to 42% in Spain.

2.3 The POs as the “core” of the CMO for Fruit and Vegetables

Producers' Organizations have been one of the main instrument provided by the Common Market Organization (CMO) for fruit and vegetables since its establishment: article 13 of Regulation (EC) n°1035/72 defined them as “any organization of fruit and vegetable producers which is established on the producers' own initiative” for specific purposes, such as “promoting the concentration of supply and the regularization of prices at the producer stage” and “making suitable technical means available to producer members for presenting and marketing the relevant products”.

Since 1972 the fruit and vegetables Common Market Organization (CMO) has undergone various reforms: in 1996, 2003 and, recently, in 2007¹. The latter reform intends to harmonize the CMO with the previous Common Agricultural Policy (CAP) reform of 2003, by including the fruit and vegetables sector in the Single Payment Scheme (SPS)².

The general principles of the CAP reform aim at supporting the orientation of a durable agriculture towards the market, at simplifying the agricultural policy, ad at supporting the rural development and the safeguarding of the environment, while ensuring a budgetary discipline.

More in detail the new regulation is targeted to reinforce the position of the producers in a market where the demand is more and more concentrated and structured, to have a better adaptation of supply to demand in terms of volumes of provisioning, as well as in terms of quality and to reduce the quantities of products withdrawn from the market and the related expenditure.

In order to achieve these goals, the new CMO for fruit and vegetables reaffirms the key function of the POs. According to art. 3 of Commission Regulation (EC) No. 1182/2007, POs must have one of the

¹ The new CMO is defined by the Council Regulation (EC) No. 1182/2007 of September 26th, 2007, and its application by the Commission Regulation (EC) n° 1580/2007 of December 21st, 2007 in force from January 1st 2008.

² Council Regulation No. 1782/2003 and Council Regulation (EC) No. 1234/2007.

following objectives: (i) ensuring that production is planned and adjusted to demand, particularly in terms of quality and quantity; (ii) concentration of supply and the placing on the market of the products produced by its members; (iii) optimizing production costs and stabilizing producer prices;

The same Regulation states that POs are legal entities recognized by the Member States and set up on the initiative of producers. Minimum recognition criteria are set, particularly as regards the number of members and turnover³.

POs require to their members to sell their total output of the product or products by reason of which they have become members through the organization, and to apply, with regard to production and marketing, rules which have been adopted by the producers' organization with a view to improving product quality and adapting the volume of supply to market requirements.

According to Art 11 of Commission Regulation (EC) No. 2200/96, there are several categories of organization, namely: fruit and/or vegetables, citrus fruits, nuts, mushrooms and products intended for processing, as well as other organizations covering several products.

In order to pursue the above mentioned objectives, the CMO provides the POs to implement multiannual operational programs, co-financed by the producers and the Commission⁴. Co-financing is set to 50% of the amount of the real expenditure carried out under the operational programs and is limited to 4.1% of the Value of Marketed Production (VMP) of each PO.

The duration of Operational Programs must be comprised between 3 and 5 years. Such programs must have two or more objectives among (a) planning of production, (b) improvement of product quality, (c) boosting the commercial value of products, (d) promotion of the products, whether in a fresh or processed form, (e) environmental measures and methods of production respecting the environment, including organic farming, (f) crisis prevention and management.

In order to comply with environmental requirements, Operative Programs must foresee also a minimum of two initiatives, or at least 10% of the Operational Fund expenditure, in favor of the environment.

Moreover, the new CMO assigns to POs the tasks related to crises prevention and management. Within the framework of Operational Programs, the POs can use different measures according to their needs: green harvesting or no harvesting, withdrawal and free distribution, harvesting insurances, promotion and communication, training, administrative cost support for the setting up of mutual funds. However the expenditure related to such measures must not comprise more than one-third of the expenditure under the Operational Program.

As a result of the new CMO reform of the fruit and vegetables sector, the POs have gained greater flexibility, but also greater responsibility in the use of operational funds. The main difficulty in the implementation of Operational Programs is that each PO should be able to define the specific actions of its program and to make sure that they are coherent with the objectives of the policy.

3 Relevant economic issues

The present study aims at describing the relationship between agricultural producers' coordination and processors and distributors down the supply chain. In economic terms this means assessing the relationship between the horizontal structure of the agricultural sector and the relations with the downstream demand for agricultural products.

The traditional paradigm of Industrial Organization provides an useful tool to assess this kind of problem, by considering the relations existing between market Structure, firms' Conduct and Performance (SCP paradigm). The basic idea of the SCP paradigm is that concentration (defined by the degree of buyer-seller concentration, the extent of product differentiation, and the conditions of entry) determines the conduct of firms in the industry (price and output policies, product development and promotion policies, behavior toward rivals), which, in turn, determines the market performance (price-cost margin, production efficiency, relative expenditures on advertising and promotion, product character) (Mason, 1939, Demsetz, 1973).

³ Art. 4 of Commission Regulation (EC) No. 1182/2007 of September 26th, 2007

⁴ Artt. 8 and 9 of Commission Regulation (EC) No. 1182/2007.

However, the causal effect described in the paradigm cannot be seen only in this direction (from structure to performance), but it must be considered also the feed-back effect from conduct and from performance to structure. Many economists argued that, more and more often in modern markets, firms' conduct and their performance aim at affecting the market structure to their benefit. In particular firms size and cost conditions can be improved through mergers and acquisition or organizational and process innovations. Further, demand elasticity can be affected by means of advertising and promotional campaigns. Finally, efficiency gains, pricing strategies and profit obtained can be used to increase market shares (Chandler, 1962).

The main features that define the structure of the Fruit and Vegetables production and marketing system are the specific product characteristics (seasonality, freshness and perishability) and the concentration trend described above. Perishability causes shipping costs to be high and requires efficient logistic processes, to move the product through the chain as rapidly as possible and to maintain valuable quality and safety characteristics. Concentration, particularly in the distribution stage, has a relevant impact on the sector and on producers. The most important consequences for producers relate to the strategic conduct of large retail chains as the renewal of retail supply practices and quality and coordination issues.

The centralization of supply management (purchases and logistics) led to the development of direct relations between producers and retailers (contract trading) and reduced the role of wholesale markets. Thus retailers are implementing private standards (EurepGap, GlobalGap, etc. and prefer to make use of specialized wholesalers (by products) and preferred suppliers capable of providing a larger assortment of products year-round.

These private food safety and quality standards have evolved in response to regulatory developments and, more directly, consumer concerns, and as a means of competitive positioning in markets for high-value agricultural and food products. (Henson and Hooker, 2001). Most often they operate alongside regulatory systems and, although not legally binding in a regulatory sense, can be de facto mandatory for suppliers. Such standards are used to increase profits through facilitating product diversification, and thus provide incentives to suppliers to make asset-specific investments and drive consumers to satisfy their desire for product diversity. At the same time, supermarket and food service chains and major food processors use private standards to reduce costs and risks in their supply chains. The main cost reduction comes from using process standards to co-ordinate procurement chains and systems.

As far as agricultural producers are concerned, the required supply specialization is attained through extensive investments in sunk assets, that represent exit barriers for farmers and cause their supply to be inelastic. Further, due to price competition between major retailers, the market balance power for producers (especially for basic products) is worsening. High buyer concentration in the relevant market, coupled with inelastic supply of the commodity, jointly constitute compelling structural evidence of buyer market power. In other words, agricultural markets (and in particular the fruit and vegetables sector) are likely to be structural oligopsonies (Sexton, 1994).

Farmers' main opportunities to foster competitive conditions in their selling market are through developing means of countervailing power. Given the size disparities between farmers and their buyers, countervailing power must often be attained jointly through producers' associations and/or marketing cooperatives.

At the same time, horizontal concentration (larger producers' associations) is an effective tool to achieve vertical coordination with the distribution stage. A stronger vertical coordination (production or marketing contracts) would result in lower search and monitoring costs (Hobbs, 1996) and would enhance market access conditions, due to the fact that processors and distributors may prefer to lower their transaction costs by dealing with only few producers who contract to provide large volumes of the agricultural products in question.

Therefore, producers' horizontal coordination can be seen as a tool to achieve vertical coordination and to gain access to marketing channels. The agricultural marketing literature has paid lots of attention to the relationship between supplier characteristics and channel choice. The focus has been particularly on the role of horizontal market structure as a means of offering competitive advantages (Shaw and Gibbs, 1996). The main benefits for producers relate to vertical integration between the growing and marketing function through co-operation of groups of growers to market their production together. Thus, producer co-operation provides the following benefits: improved bargaining power, achievement of economies of scale in procurement and marketing, access to specialized expertise and information. In the end,

producers' associations are better able to satisfy the strict requirements related to volume, services and products specifications, demanded by industrial processors and large retailers (Sexton, 1986).

Finally, the literature suggests also the existence of some relationship between channel use and supply characteristics, with the conclusion that size of supplier may affect the type of channel that he is able to access and that channel membership may confer ongoing benefits which become enhanced over time (Sporleder, 1992).

4 Methodology

The main phenomena studied in this paper relate to fruit and vegetables products supply concentration and marketing by the POs in 3 important EU producing Countries, such as France, Italy and Spain. Therefore, the assessment is conducted with a comparative approach, so as to identify both the main common trends and particularities existing among the 3 Member States.

The analysis is based on the information transmitted annually to the European Commission by each MS on the POs of their Country, according to a standard format provided by the Commission⁵. The Annual Reports contain: *a)* data on POs structure and distribution, such as administrative information (including recognition number, legal form, number of physical and legal members) and production information (including the calculation of the value of marketed production and information on key products), as well as *b)* data on their Operational Funds and Operational Program and main categories of expenditure.

Since the Annual Reports should be sent to the Commission by November of the year after the reference period, the latest Annual Reports available to date are those sent at the end of 2008, containing information related to the year 2007.

These reports were organized in a single database containing 1.204 POs and 299.499 producers. Unfortunately, the Annual Reports submitted by MSs are not always complete since some POs provide only a part of the information required. Therefore we had to extract a smaller, but more complete and homogeneous dataset, to carry out the analysis. The final dataset includes 984 POs (82% of total) and 280.856 producers (94% of total POs members). The significance of the database is high also in each single Member State. In fact it includes: 85% of POs and 98% of PO members of France, 84% of POs and 99% of producers in Italy and 79% of POs and 92% of associated producers in Spain.

In order to provide a deeper understanding of the supply concentration and marketing performance of the POs, the database has been analyzed with cross-sectional descriptive statistics. The variables of main interest are the number of POs and the Value of Marketed Production (VMP), classified on the basis of POs categories, the type of products, the marketing channels and the Operational Program measures. The POs distribution has been studied in each Member State and compared to the other by sorting observations into four equal parts, so that each part represents one fourth of the population considered (quartiles). Then, the inter-quartile distribution of the target variables has been considered in each MS and compared to the one in the other MSs.

5 The role of POs in supply concentration and marketing

5.1 POs evolution and structure

The concentration of agricultural production is the primary objective assigned to POs by the CMO and, according to the economic literature, producers can benefit from higher concentration levels. Therefore, it is very important to evaluate the performance of POs in terms of number of producer members and value of the production marketed.

The following table shows the data of fruit and vegetables production and of all POs in France, Italy, Spain and the total EU-27 from 200 to 2007.

⁵ According to art. 22 of Commission Regulation (EC) No. 1433/2003 (lately replaced by Article 98 of Reg. (EC) No 1580/2007) introduced the provision for POs in each Member State to submit annual reports, accompanying applications for aid, on the implementation of operational programs.

In 2007 the total value of production in the EU-27 was 53.315 million euro and the total number of POs existing was 1.553 units, accounting for a VMP of 17.679 million euro and almost 300.000 producers. Spain has the largest number of both producers and POs, and the higher VMP among the three Member States, followed by Italy and France. In the last 7 years all these variables have increased. However the total value of production has increased more than the VMP per PO (respectively by 43,1% and 39,9%) and we observe different trends across the various Member States.

In order to better understand the evolution of the sector, it is useful to refer to the “Organization Rate”, defined as the VMP per PO as related to the total production of the Member State. The overall rate of organization in the EU-27 is rather weak: it was 33,2% in 2007 (Table 3). However the rate of organization is very heterogeneous from Country to Country. A general distinction can be made opposing the Southern European Countries with Northern European ones. The former (Spain, Portugal, Italy, Greece, France) have a larger number of POs of reduced size (VMP lower than 15 M€ on average). The latter, on the contrary, there are fewer POs of larger size and a very high rate of organization (over 90% in Ireland and Netherlands).

As shown in the following table, the overall rate of organization at EU-27 level is slightly decreasing (-0,8%). Single MSs show opposite trends: while in France the ratio shows a significant decrease (-10%), in Italy it increased by 10%.

There may be various reasons for the overall low rate of organization of the sector, especially in the Mediterranean countries. First of all one can consider the existence of alternative support to investments through structural funds and rural development funds, which are available in these Countries and lower the incentive for producers to group together (while in Northern Europe these funds are much lower). Another factor to consider is the lower competitive pressure experienced on the market, due to the existence of proximity markets, the lower impact of large retail sector, and the lower pressure from imports. Finally it is important to pay attention to management issues related to the complexity of the CMO and the relative inefficiency of administrative and government offices in some Member States.

Another important issue relates to the existence of different organization rates in the various segments of the sector. For example, in spite of the overall organization rate of 36,3%, in Spain the citrus fruit segment is much more concentrated and attains an organization level of about 50%. Fruits in general reach a ratio around 50-60%, thanks to the export orientation of the producers and the incidence of cooperatives. In the case of tomatoes for processing industry, the organization rate reaches 80-90%. Similar features can be found in the apple segment in Italy (85%).

Table 3 - POs number, VMP and Organization Rate in France, Italy, Spain and UE-27

	MS production of fruit and vegetables		POs		Value of the Production Marketed by POs		Organization rate	
	2007 (mio €)	2007/2000 var (%)	2007 (n.)	2007/2000 var (%)	2007 (mio €)	2007/2000 var (%)	2007 (%)	2000 (%)
France	6.094	+10,8%	308	-8,5%	2.804	-9,2%	46,0%	56,1%
Italy	11.680	+22,5%	265	+116,9%	4.135	+71,2%	35,4%	25,3%
Spain	15.000	+48,7%	631	+23,8%	5.445	+56,6%	36,3%	34,5%
EU-27	53.315	+43,1%	1.553	+21,6%	17.679	+39,9%	33,2%	33,9%

Source: EU - Annual Reports on Producer Organizations – DG AGRI-C.2

On the basis of the dataset described in the previous paragraph, we can now consider the distribution of POs according to the number of POs and their VMP. Observing the following table, we notice significant differences among the three MSs (Table 4).

Spain has by far both the largest number of POs and the related VMP amount: they are almost double than those of France and Italy. By considering the single quartile composition, the smallest groups of POs are to be found in Italy (55 or 56 each) and France (65-66), while Spain POs form larger groups (of 125 units).

Looking at the amount of the cumulated VMP in each quartile, we observe that the POs of the MSs considered show comparable values in each of the first three groups of POs. French POs sum up a higher VMP in the first and second quartile, while Spain has a higher cumulated VMP in the third. ON the contrary, the largest group of POs in Spain delivers more than 4,1 million euro of VMP, accounting for 81% of the total POs VMP.

Overall, it is possible to notice that Spanish POs have the most polarize distribution, concentrated around the larger organizations, followed by Italy (where the same group of POs accounts for 72% of the total VMP). Spain has a more homogeneous distribution, with the highest percentages of VMP in the first three groups (respectively 5%, 11% and 20%).

Table 4 - Distribution of POs according to their VMP in France, Italy and Spain (2007)

	France				Italy				Spain			
	POs (n.)	VMP (1000 €)	cumulated VMP (1000 €)	(%)	POs (n.)	VMP (1000 €)	cumulated VMP (1000 €)	(%)	POs (n.)	VMP (1000 €)	cumulated VMP (1000 €)	(%)
I quart (25%)	66	3.275	129.564	5%	56	3.085	104.075	4%	125	1.474	79.018	2%
II quart (50%)	65	6.532	297.712	11%	55	5.970	244.137	8%	125	3.153	297.581	6%
III quart (75%)	65	11.597	550.392	20%	55	11.156	447.765	16%	125	7.291	589.338	12%
IV quart (100%)	66	154.991	1.782.173	65%	56	341.568	2.078.906	72%	125	653.736	4.127.176	81%
Total	262	2.759.840	2.759.840	100%	222	2.874.883	2.874.883	100%	500	5.093.113	5.093.113	100%

Source: EU - Annual Reports on Producer Organizations – DG AGRI-C.2

Another interesting issue to consider is production specialization. According to Council Regulation (EC) No 2200/96, the POs are grouped in seven categories. The following table shows the distribution of the considered POs on the basis of those categories (Table 5).

Unfortunately, this kind of grouping does not provide detailed information concerning the actual production orientation. In fact, the category with the largest number of POs and the largest amount of VMP is the general category of “fruit and vegetables” in each one of the Country considered. Nevertheless it is possible to notice that, while Italy and Spain have a larger share of POs and VMP belonging to the “fruit” group (33-34%), France has a relatively higher share of VMP in the category “vegetables” (15%). Further, it is interesting to notice that 17% of POs and 8% of VMP in Spain come from the “citrus fruit” group.

Table 5 - POs number and VMP according to categories set in Council Regulation (EC) No 2200/96

Categories	France				Italy				Spain			
	POs		VMP		POs		VMP		POs		VMP	
	(n.)	(%)	(1000 €)	(%)	(n.)	(%)	(1000 €)	(%)	(n.)	(%)	(1000 €)	(%)
(i) fruit and vegetables	136	52%	1.719.592	62%	107	48%	1.191.288	41%	228	46%	2.349.484	46%
(ii) fruit	40	15%	284.257	10%	54	24%	979.807	34%	92	18%	1.659.842	33%
(iii) vegetables	41	16%	400.332	15%	24	11%	302.159	11%	36	7%	390.885	8%
(iv) products intended for processing	9	3%	116.833	4%	14	6%	115.059	4%	17	3%	133.187	3%
(v) citrus fruit	4	2%	18.084	1%	8	4%	40.036	1%	85	17%	403.574	8%
(vi) nuts	16	6%	91.051	3%	4	2%	24.802	1%	38	8%	122.593	2%
(vii) mushrooms:	1	0%	6.480	0%	2	1%	105.961	4%	3	1%	33.144	1%
n.a.	15	6%	123.212	4%	9	4%	115.771	4%	1	0%	403	0%
Total	262	100%	2.759.840	100%	222	100%	2.874.883	100%	500	100%	5.093.113	100%

Source: EU - Annual Reports on Producer Organizations – DG AGRI-C.2

In order to better understand the level of production specialization, we can consider their distribution on the quota of VMP delivered by the first and second product of the POs in each Country (Table 6). Overall, the highest contribution of the first two products to the total VMP is to be found in Italy, which reaches a total degree of specialization of 86%, followed by France (64%). In Spain the first two products account for a bit less than half of total VMP.

Italian POs are mostly specialized in apples and pears (as first product, apples and pears sum up a quota of 89% of total VMP), citrus fruit (in the POs in which it is considered as both first and second main product provides 92% of total VMP), fruit jelly and marmalades (89% of total VMP), carrots, apricots, cherries, peaches, plums and tomatoes are all over 80%.

France has a very high relative VMP in lettuce and chicory and tomatoes (both 98%), apples and pears (80%), apricots, cherries, peaches and plums and leguminous vegetables (66-67%).

Spanish POs are highly specialized in tomatoes (considered both as first or second product provides 96% of total VMP), onions, shallots, garlic, leeks (two main products account for 87% of total VMP), nuts (85%), cucumbers (76%), apples and pears (70%).

Table 6 - POs product specialization in France, Italy and Spain (VMP of the 1st and 2nd product)

	France			Italy			Spain		
	1 st prod	2 nd prod	1 st &2 nd prod	1 st prod	2 nd prod	1 st &2 nd prod	1 st prod	2 nd prod	1 st &2 nd prod
apples and pears	61%	19%	80%	89%	6%	95%	47%	23%	70%
apricots, cherries, peaches, plums	45%	24%	69%	76%	9%	85%	31%	18%	50%
cabbages, cauliflowers	49%	11%	61%				31%	20%	51%
carrots	44%	15%	59%	65%	22%	87%	33%	29%	61%
citrus fruit	32%	19%	51%	72%	20%	92%	48%	11%	59%
cucumbers					5%	5%	48%	27%	76%
fresh figs							13%		13%
fresh table grapes	42%	10%	52%	60%	12%	72%	32%	17%	50%
fruit jelly and marmalad				80%	10%	89%			
leguminous vegetables	41%	25%	66%	55%	22%	78%	31%	26%	58%
lettuce and chicory	75%	23%	98%	52%	22%	74%	31%	12%	43%
melons and water melons	44%	11%	55%	57%	20%	77%	31%	12%	43%
onions, shallots, garlic, leeks	47%	9%	56%	60%	13%	73%	82%	5%	87%
other fresh fruit	33%	20%	53%	58%	13%	71%	68%	14%	82%
other fresh vegetables	48%	15%	62%	62%	10%	71%	37%	16%	53%
other nuts	50%	5%	55%	66%	16%	82%	67%	18%	85%
sweet herbs (basil, melissa, thyme)	15%		15%		12%	12%	21%		21%
tomatoes	74%	24%	98%	61%	20%	82%	71%	25%	96%
Total	49%	15%	64%	77%	9%	86%	38%	10%	48%

Source: EU - Annual Reports on Producer Organizations – DG AGRI-C.2

While agronomic crop marketing decisions often focus on production planning and the timing of sales, other factors, such as harvest timing, market access, logistics, vertical coordination arrangements, and risk management, are also essential details in the marketing of fruits and vegetables. These requirements and the profitability of the sales vary among the different types of marketing channels.

The following Table 7 shows the VMP distribution of the POS between the main marketing channels. The greatest part of production is marketed for the fresh market: 86% in France, 85% in Italy and 73% in Spain. In this context, wholesales account for over half of the VMP in France and Italy, while in Spain their share is quite lower (35%). Supermarkets represent the second marketing channel as for VMP shares, which are higher in Spain (23%) than in France and Italy (17-18%).

As far as processing is concerned, Spanish POs have the strongest attitude, both to sell fresh product to processing industry (16%), and to self-process their own products (11%). Processing industry receives lower percentage of POs VMP in France and Italy (respectively 11% and 9%). On the contrary, self-processing is more frequent in Italy (6%) than in France (1%).

Table 7 – POs marketing channels in France, Italy and Spain

	France		Italy		Spain	
	(1000 €)	(%)	(1000 €)	(%)	(1000 €)	(%)
Products marketed for the fresh market	2.368.204	86%	2.442.278	85%	3.709.631	73%
multiples / supermarkets (direct)	470.573	17%	526.603	18%	1.152.530	23%
wholesale / central buying/ market	1.483.783	54%	1.494.134	52%	1.774.027	35%
small retail	50.188	2%	13.336	0%	35.222	1%
other	363.660	13%	408.205	14%	747.852	15%
Products sold for processing	391.636	14%	432.606	15%	1.383.481	27%
products sold fresh to processing companies	355.015	13%	271.286	9%	816.850	16%
products "auto-processed" by PO	36.621	1%	161.319	6%	566.632	11%
Total	2.759.840	100%	2.874.883	100%	5.093.113	100%

Source: EU - Annual Reports on Producer Organizations – DG AGRI-C.2

The analysis of the inter-quartile distributions of POs VMP (Table 8) shows an interesting relation between POs size and marketing channels used. In general, we notice that the larger the PO (that is the higher the quartile), the higher is the share of VMP destined to the fresh market, and the lower the share to be processed. In particular, the supermarket share of VMP is steadily growing from the lower to the higher quartiles either in France (from 7% to 20%), Italy (from 12-16% to 19%) and Spain (from 5% to 25%).

On the opposite, there seem to be a negative correlation between the share of VMP sold to the processing industry and the size of POs. Smaller POs (belonging to the lower quartiles) address to the processing industry quite a larger share of VMP as compared with the bigger POs in France (22% against 11%), in Italy (19% versus 7%) and Spain (23% against 16%).

Table 8 - POs marketing channels by VMP distribution in France, Italy and Spain

	France				Italy				Spain			
	I quart (25%)	II quart (50%)	III quart (75%)	IV quart (100%)	I quart (25%)	II quart (50%)	III quart (75%)	IV quart (100%)	I quart (25%)	II quart (50%)	III quart (75%)	IV quart (100%)
Products marketed for the fresh market	76%	78%	88%	87%	79%	88%	82%	86%	68%	83%	82%	71%
multiples / supermarkets (direct)	7%	13%	13%	20%	16%	12%	19%	19%	5%	7%	18%	25%
wholesale / central buying/ market	50%	51%	60%	53%	53%	61%	49%	52%	41%	64%	51%	30%
small retail	2%	1%	1%	2%	1%	1%	1%	0%	1%	1%	0%	1%
other	17%	13%	14%	13%	9%	14%	14%	15%	21%	11%	13%	15%
Products sold for processing	24%	22%	12%	13%	21%	12%	18%	14%	32%	17%	18%	29%
products sold fresh to processing companies	22%	22%	12%	11%	19%	12%	18%	7%	23%	15%	13%	16%
products "auto-processed" by PO	2%	0%	0%	2%	2%	0%	0%	8%	9%	2%	5%	13%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: EU - Annual Reports on Producer Organizations – DG AGRI-C.2

5.2 Operational Funds and Operational Programs

Enhanced product quality is a key element in order to gain market access in modern chains. POs can help their members to improve their product quality in various ways. First of all, POs can facilitate the production and marketing process and take on the processing and marketing functions themselves. Further, they can provide information and help farmers about customers' requirements. Particularly with international chains, this includes assessing the many options for international certification schemes. Moreover, POs can implement quality control systems, they can organize and facilitate innovation processes targeted at reaching higher product quality by, for instance, providing technical assistance to improve on-farm production methods.

The CMO for fruit and vegetables foresees the financing of POs activity in favor of their members by means of the Operational Fund, co-financed by both the producers and the Member States, within the limit of 4,1% of VMP of a reference period. In order to get the funds, the POs must set up a number of actions coherent, with the provisions of the CMO, that constitute their Operational Program. Unfortunately, there are still a number of POs that are not able to set up an Operational Program and receive the funds.

The following Table 9 shows the distribution of POs with Operational Funds and the related VMP.

The rate of diffusion of the Operational Fund is higher in Italy (87% of POs and 95% of VMP) and France (89% of POs and 91% of VMP), while in Spain only 77% of POs and just 63% of VMP can count on Operational Funds. Looking at the inter-quartile distribution in the use of Operational Funds we observe that in Italy the best performance is obtained by POs in the last two groups (90% and 98% of VMP fall under Operative Funds). France POs have even a better distribution, since the three largest groups (II, III and IV quartile) have all rates above 90%. On the opposite, Spain shows a sufficient rate of adoption of the Operational Funds only in the two central quartiles (82% and 88%).

Table 9 - POs with Operational Fund: number and Value of Marketed Production

	France			Italy			Spain		
	Total POs	POs with OF	POs with OF / total POs	Total POs	POs with OF	POs with OF / total POs	Total POs	POs with OF	POs with OF / total POs
POs (n.)	262	232	89%	222	194	87%	500	383	77%
I quart (25%)	66	45	68%	56	43	77%	125	69	55%
II quart (50%)	65	61	94%	55	47	85%	125	103	82%
III quart (75%)	65	62	95%	55	50	91%	125	108	86%
IV quart (100%)	66	64	97%	56	54	96%	125	103	82%
VMP (1000 €)	2.759.840	2.507.664	91%	2.874.883	2.725.584	95%	5.093.113	3.205.834	63%
I quart (25%)	129.564	97.397	75%	104.075	83.927	81%	79.018	44.413	56%
II quart (50%)	297.712	278.782	94%	244.137	208.492	85%	297.581	245.485	82%
III quart (75%)	550.392	524.365	95%	447.765	405.192	90%	589.338	515.788	88%
IV quart (100%)	1.782.173	1.607.120	90%	2.078.906	2.027.973	98%	4.127.176	2.400.148	58%

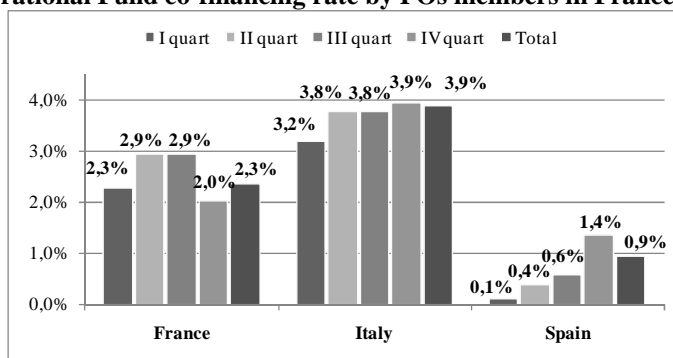
Source: EU - Annual Reports on Producer Organizations – DG AGRI-C.2

Another interesting feature to be noticed, relates to PO members's participation to the Operational Fund, quantified through the co-financing rate. As explained above, this rate cannot exceed 4,1%, but in several cases it is quite lower, to signify a low level of commitment by producers.

According to the data collected by the European Commission, the highest average co-financing rate in 2007 was registered in Italy (3,9%), followed by France (2,3%) and Spain (0,9%). Even though the very low rate registered in Spain could be caused by the transmission of incomplete data from Spanish authorities and POs, it is interesting to observe the inter-quartile distribution of the co-financing rate in each of the three Countries. Excluding the higher quartile in France, in fact, we notice a steady increase of the co-financing rate, moving from the groups of smaller POs (I and II quartile) to the groups of the larger ones (III and IV quartile), in each Member State.

This trend provides evidence of the higher efficiency and better performance of the larger POs as compared to the small ones.

Figure 1 – Operational Fund co-financing rate by POs members in France, Italy and Spain



Source: EU - Annual Reports on Producer Organizations – DG AGRI-C.2

Within the group of POs with Operational Funds, it is interesting to assess the type of measures implemented by size of POs, as showed in Table 10.

Among all the measures foreseen by the Operational Programs, the largest expenditure is related to production measures in all the Countries considered: 70,8 million euro in France (50% of total expenditure), 62,4 million euro in Spain (38%) and 52,4 million euro in Italy (40%). Production measures consist mainly of technical measures (that is phytosanitary measures, irrigation, machinery, greenhouses, plants, R&D), especially in France and Spain, while Italy has a relevant share of environmental measures related to production (organic / integrated production, R&D – 18%). Once again the share of total expenditure related to such measures, shows a positive correlation with the size of the POs: moving from the lower quartile to the upper one, they vary from 35% to 41% in France, from 18% to 31% in Italy and from 27% to 37% in Spain.

Marketing and post-harvest measures receive the second largest amount of resources, accounting for 44%, 41% and 35% of total expenditure in Spain, Italy and France. Technical measures (land, real estate, storage, packaging, transport, R&D) are particularly important in Spain and Italy (around 27-28% of total). Spanish POs devote 13% of the total expenditure to special environmental measures related to this stage of the marketing chain (waste management, additional transport costs, research, R&D), while Italian POs use larger shares of their funds (7%) in favor of sales and promotion measures (production planning, market research, sales offices, promotion, R&D).

Control measures on quality and phytosanitary standards (equipment, personnel costs, residue analysis, R&D) are higher in Spain, both in their total amount and in the relative share (respectively 21 million euro and 13% of total expenditure). The quota of such measures is quite stable across the different quartiles in Spain and Italy, while in France their expenditure decreases from 18% in the lower quartile to 8% in the upper one.

Other measures concern the implementation of certification standards (ISO 9000 systems, ...) are particularly relevant in Italy (6%), while overhead costs (typically administrative costs) are stable around 2% of the expenditure in each one of the Member States.

Table 10 – Operational Program measures undertaken by the POs in France, Italy and Spain

	TOTAL	Production				Control	Marketing and post-harvest				Other					
		Total	Technical measures	Services, training, research	Special environm. measures		Total	Technical measures	Sales, promotion, outlets	Special environm. measures	Total	Over-heads	Mergers, acquisit.	Other		
France	(1000 €)	140.897	100%	70.826	56.697	2.940	11.189	14.670	49.010	25.398	8.833	14.779	6.391	2.668	776	2.948
	(%)		100%	50%	40%	2%	8%	10%	35%	18%	6%	10%	5%	2%	1%	2%
	I quart (25%)	6.320	100%	45%	35%	2%	9%	18%	33%	22%	6%	6%	3%	2%	0%	2%
	II quart (50%)	16.692	100%	49%	37%	3%	9%	16%	31%	17%	7%	7%	4%	2%	0%	2%
	III quart (75%)	29.667	100%	53%	41%	3%	10%	11%	32%	17%	5%	9%	4%	2%	0%	2%
IV quart (100%)	88.217	100%	50%	41%	2%	7%	8%	37%	18%	7%	12%	5%	2%	1%	2%	
Italy	(1000 €)	132.190	100%	52.351	25.250	2.853	24.248	14.982	54.417	37.215	9.435	7.767	10.439	2.114	97	8.228
	(%)		100%	40%	19%	2%	18%	11%	41%	28%	7%	6%	8%	2%	0%	6%
	I quart (25%)	4.645	100%	43%	18%	5%	20%	13%	39%	25%	10%	4%	5%	2%	0%	3%
	II quart (50%)	10.427	100%	47%	28%	4%	15%	11%	37%	22%	10%	5%	4%	2%	0%	2%
	III quart (75%)	15.617	100%	49%	31%	4%	14%	12%	34%	20%	7%	7%	5%	2%	0%	3%
IV quart (100%)	101.501	100%	37%	16%	2%	19%	11%	43%	30%	7%	6%	9%	1%	0%	7%	
Spain	(1000 €)	164.277	100%	62.397	55.633	1.328	5.435	20.936	71.841	43.804	6.983	21.054	9.103	3.267	496	5.340
	(%)		100%	38%	34%	1%	3%	13%	44%	27%	4%	13%	6%	2%	0%	3%
	I quart (25%)	14.710	100%	28%	27%	0%	1%	15%	51%	27%	5%	18%	6%	2%	0%	4%
	II quart (50%)	18.022	100%	35%	29%	1%	5%	14%	46%	29%	5%	12%	6%	3%	0%	3%
	III quart (75%)	32.602	100%	35%	31%	1%	2%	15%	44%	25%	6%	13%	6%	2%	0%	4%
IV quart (100%)	98.943	100%	41%	37%	1%	4%	12%	42%	27%	3%	12%	5%	2%	0%	3%	

Source: EU - Annual Reports on Producer Organizations – DG AGRI-C.2

6 Concluding remarks

The study concentrated on the structural features and the strategic behavior of economic agents in the fruit and vegetables supply chain. As far as producers are concerned, a number of factors (producers' fragmentation, product perishability, investments in sunk assets, etc.) cause the supply from agricultural producers to be rather inelastic. On the other hand, at the processing and distribution stage we observe an increasing concentration, and the intensification of buyer market power. Therefore, fruit and vegetables markets are likely to be structural oligopsonies.

Farmers' main opportunities to foster competitive behavior in their selling market are through developing means of countervailing power. Given the size disparities between farmers and their buyers, countervailing power must often be attained jointly through associations of producers.

POs give producers the opportunity to increase their bargaining power, share risk and attain scale economies. First of all, POs can facilitate the production and marketing process and take on the processing and marketing functions themselves. Further, they can provide information and help farmers about customers' requirements. Particularly with international chains, this includes assessing the many options for international certification schemes. Moreover, POs can implement quality control systems, they can organize and facilitate innovation processes targeted at reaching higher product quality by, for instance, providing technical assistance to improve on-farm production methods.

In the end, POs are an intermediary between a large number of small farming households and few buyers. In this perspective, horizontal concentration is a means to achieve vertical coordination with the downstream marketing channels.

The analysis conducted shows that the success of POs is variable across the Member States. Further, their success depends largely on the size of business.

As far as the concentration of supply is concerned, the performance of POs in terms of number of producer members and value of the production marketed is ambiguous. In the last seven years the rate of organization is slightly decreasing at EU level, but single Member States show opposite trends: while in France the ratio shows a significant decrease (-10%), in Italy it increased by 10%. Overall, the CMO doesn't really seem to have been able to foster the creation of new structures: in spite of the large number of POs existing in most Member States (in 2007 they were 1553), most POs have a limited size (median of about 5million euro).

However the results of the study conducted on France, Italy and Spain provided some positive results, highlighting high specialization levels on some products and an adequate high capability of concentrating agricultural supply by the largest POs, especially in Spain and Italy.

The analysis of the main marketing channels confirms that the greatest part of production is marketed for the fresh market (86% in France, 85% in Italy and 73% in Spain), while Spanish POs have the highest rate of product sold for processing (16%) and self-processed (11%). The economic literature suggestion that the size of supplier may affect the type of channel that he is able to access is confirmed by the inter-

quartile distribution of the VMP by marketing channel. In general, we notice that the larger the PO, the higher is the share of VMP destined to the fresh market, and the lower the share to be processed. In particular, the supermarket share of VMP is steadily growing from the lower to the higher quartiles in each one of the Countries considered. On the opposite, there seem to be a negative correlation between the share of VMP sold to the processing industry and the size of the POs: Smaller POs address to the processing industry quite a larger share of VMP as compared with the bigger POs.

The assessment of POs activity in favor of their members was carried out at first considering financial data related to their Operational Funds. The rate of diffusion of the Operational Fund resulted relatively high in France (89% of POs and 91% of VMP) and Italy (87% of POs and 95% of VMP), while in Spain only 77% of POs and just 63% of VMP can count on Operational Funds. These positive results are confirmed by the inter-quartile distribution for France, while in Italy the best performance is obtained by POs in the last two groups. On the opposite, Spain shows a sufficient rate of adoption of the Operational Funds only in the two central quartiles.

Another interesting feature to be noticed, relates to PO members' participation to the Operational Fund, quantified through the co-financing rate. The data available show quite different rates of co-financing: higher in Italy (near the maximum level of 4,1%), intermediate in France (2,3%) and much lower in Spain. However, apart from the absolute rate registered, it is interesting to observe the inter-quartile distribution of the co-financing rate in each of the three Countries. In fact, we notice a steady increase of the co-financing rate, moving from the groups of smaller POs to the groups of the larger ones, in each Member State. This trend provides further evidence of the higher efficiency and better performance of the larger POs as compared to the small ones.

Moreover, within the group of POs that implement an Operational Program, we notice that the largest expenditure relates to production measures, these are mostly technical measures, specially in France and Spain (respectively 40% and 34% of the total), while Italy has a relevant share of environmental measures related to production as well (18%). Once again we notice that the share of total expenditure related to such measures, shows a positive correlation with the size of the POs.

Marketing and post-harvest measures receive the second largest amount of resources, among which technical measures are particularly important in Spain and Italy (27-28%). A significant share of resources is devoted by Spanish POs to special environmental measures related to marketing and post-harvest stages (13%), while Italian POs use larger shares of their funds (7%) in favor of sales and promotion measures.

Control measures on quality and phytosanitary standards are higher in Spain, while measures concerning the implementation of certification standards are particularly relevant in Italy.

Finally, overhead costs (typically administrative costs) are stable around 2% of the expenditure in each one of the Member States.

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