

The challenges of concentration in the agricultural product supply chain: a study of Producer Organizations in Portugal

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Abstract— One of the greatest challenges facing rural producers stems from the difficulties in accessing markets majority controlled by the major distribution chains. The small quantities under production and the low level of investment capacity ensure that smallholders in particular encounter an asymmetric relationship with the retail sector. The European Union (EU), through means of the Common Agricultural Policy (CAP), has adopted strategies to overcome these obstacles through stimulating farmers to concentrate their own supply through Producer Organisations (POs). These POs, in addition to concentrating supply, also act to improve productivity and guarantee reasonable prices to consumers. The objectives of this article include analysing challenges faced by the concentration of the agricultural product supply chain through a study of POs in Portugal. The research findings arise from analysis of both primary and secondary sources of information. The research techniques applied were documental analysis and holding interviews with six key players. The research results demonstrate how the average level of PO participation in the EU stands at 46% but falls back to 25% in Portugal. The results are also below those presented at the EU level despite accelerated growth taking place in the horticultural sector, which more than doubled its level of participation over the last decade (10% in 2005 rising to 26% in 2014). We conclude that, on the one hand, POs respond positively to the challenges of supply chain concentration; on the other hand, this has lacked the impact necessary to reversing the ongoing rural desertification in Portugal.

Keywords— *Producer organisations; Agricultural production; Horticultural sector; Common Agricultural Policy (CAP).*

I. INTRODUCTION

It was above all from the 1990s onwards that the agro-food industry began losing influence over the coordination of distribution and retail channels, which were captured by the major retail distribution chains. The

omnipresent supermarket and hypermarket formats essentially form the most visible facet of this process. The change experienced in control over the market fundamentally results from the privileged position of the retail sector in terms of access to information about consumer behaviours and habits, the volatility in agricultural product prices; the concentration in the sector through means of mergers and acquisitions; among others (EC, 2009; Velázquez and Buffaria, 2017).

These transformations provided consumers not only with access to a greater variety of better quality products but also declining prices. The latter trends stemmed both from economies of scale and from the rise in the negotiating power of retailers over their suppliers. This process has indeed witnessed a growing concentration of negotiating power in the retail sector and becoming especially able to impose their terms on inputs from small scale farmers.

These transformations have enabled the distribution sector to attain a privileged position in the chain of value, especially within the EU context. Thus, agricultural producers and even industries in the sector became far more exposed to their power of influence. Hence, the positioning of the agricultural sector has progressively slid down the overall chain of value (EC, 2007). Currently, the aggregated value of agriculture in the food chain accounts for 21% of the total against 31% in 1995. The food processing industry represents 28% and with the distribution sector on 51%¹ (EC, 2015a; Nicholson and Young, 2012; Cavicchioli, Cacchiarelli and Pretolani, 2016).

In order to mitigate this situation, the EU, under the auspices of CAP and through the Organisation for Common Markets (OCM), set up a set of instruments for regulating agricultural markets. The first stimulus for consolidating the OCM came with the training incentives for Producer Organisations (POs), launched in the early 1970s (EEC regulation no. 1035/72). Henceforth, POs have experienced various changes both in terms of their design and their objectives. From their initial function, planned

to facilitate the management of the post-harvest supply to the fresh produce sector, this then emerged as a means for improving on the competitive position of rural producers following the market deregulation carried out by the reforms of CAP that began in 1994 (EC, 2009).

The EU strategy to strengthen the negotiating powers of agriculture through means of POs arose out of the recognition of how the small scale of rural operations represented one of the main problems to commercialising their products. Therefore, there was the correspondingly perspective that concentration of supply might bring beneficial effects for rural producers to the extent that they might not only reduce their costs through economy of scale effects but might also boost their negotiating power downstream. In the case of Portugal, the level of organisation and concentration of production still remain at fairly low levels when compared with other member states² (GPP, 2015).

Based on this problematic framework, this article seeks to analyse challenges posed by the concentration in the supply chain for agricultural products through studying the role of POs in Portugal.

From the conceptual framework perspective, the current research seeks to corroborate other studies carried out on POs and the relevant factors that impact on the agricultural sector in the EU and in Portugal. From the survey made of POs, we may highlight the increasingly deep interconnections between agro-food systems. This trend shapes the competitiveness of the food supply chain, the distribution of the negotiating powers prevailing among its actors and, finally, its efficiency and economic performance (Severini and Sorrentino, 2017). In methodological terms, this research stems from analysis of primary and secondary sources of information. As research techniques, we above all made recourse to documental analysis and holding semi-structured interviews with six privileged informants, with their identities withheld and identified only by "E" and their respective interview number.

The article contains a total of four sections. Following this brief introduction, analysis turns to the market powers of the retail sector and the challenges inherent to the concentration of supply (second section) and the EU strategies to (re)balance the negotiating powers in the agro-foodstuffs sector (third section). Subsequently, the article focuses on the role of POs in Portugal as regards the concentration and commercialisation of agro-food production (fourth section). This also analyses aspects regarding the constitutions and the general panorama of recognised POs and the challenges in the concentration of production in Portugal. Finally, we set out our final considerations.

II. THE MARKET POWER OF THE RETAIL SECTOR AND THE CHALLENGES OF AGRO-FOOD SUPPLY CHAIN CONCENTRATION

After the 1980s, the main change taking place in terms of the workings of the agricultural market was the shift in the power relations controlling them. According to Dobson and Waterson (2001 and 2003), there was a radical transformation: the replacement of the market power of producers/suppliers by the market power of retailers. This shift in power took place not only through the implementation of sophisticated logistics systems that enabled the storage of large quantities of products and their just-in-time distribution to the networks but also due to the capacity to meet the needs of consumers through carrying out market studies and prioritising their own brands as a means of competing with suppliers. This combination of factors resulted in the growing capacity of the retail sector to influence the terms and conditions of unilateral procurement contracts and aggressive negotiating strategies with.

The asymmetric negotiating powers prevailing in the market generate imbalances in keeping with the concept of unequal bargaining power. Thus, one of the parties holds sufficient power to impose unfavourable contractual terms and conditions on the other party, generally resulting in unfair outcomes from the social point of view (Inderst and Mazzarotto, 2008). As the authors refer, this process falls under the definition of buyer power (oligopolistic/monopolistic market powers / powers of monopsony) that, in a broader sense, corresponds to the negotiating powers that the buyer holds over the respective suppliers. Such imbalances drive practices effectively restricting competition, with negative effects on the wellbeing of consumers, producers, with predatory prices, the elimination of competitors, among other consequences.

In the agro-food sector, such weaknesses extend beyond the concentration of supply and, despite the enormous technological advances, the segment remains entirely hostage to climate conditions, soil fertility, product perishability and seasonality. These factors generate instability in terms of production, pricing, storage, transport and commercialisation. These issues have been decisive in altering the negotiating power relationships prevailing in agro-food sector markets (EC, 2009; EC, 2013; McCorrison, 2002).

The way in which the market for agricultural products is structured is susceptible to oligopsonic³ practices due to the fact that the retail chains may influence the prices, varying only in the quantities acquired (Sexton, 2012; Vasconcelos and Garcia, 2014). Among the various existing market structures, the

oligopsony differs from monopolies and oligopolies due to having an inverse structure given that the former are characterised above all by a small group of buyers in a specific field in which there are many sellers. This concentrated structure, just as Vasconcelos and Garcia (2014) highlight, assumes the prevailing existence of imperfect competition. The fact of having a restricted number of buyers takes effect through their strong influence over the formation of prices. In such markets, sellers commercialise their products at the prices defined by the buyer due to the restrictions in place over any increase in price, with that defined by the buyer the final price in effect. In such cases, should there be any price rises, the tendency is for buyers to acquire products from other suppliers.

In the case of agricultural markets, studies carried out by Rogers and Sexton (1994) and Felis and Garrido (2015) demonstrate the trend towards the concentration of power in the retail sector, greater in this sector when compared to other segments, and thus reflecting the more limited scope for rural producers. The research conclusions from the Sexton and Zhag (2006) study on the United States report the behaviours of supermarket chains for fresh produce and other products.

Other research also brought to light similar concerns about the negative implications of concentrating power in the markets for agricultural products. The Sexton (2012) study identified a loss of economic vitality in rural areas due to the inequalities in their negotiating powers. As collateral effects of this concentration of power, Dobson *et al.* (2001) highlight the control wielded over suppliers. Furthermore, the United Kingdom's Competition Commission's report (DFID, 2004) detected imbalances in the negotiating powers of producers and buyers.

Studies by Wilkinson (2006) had already identified the trend towards the concentration of power in the retail sector at the global level. The large companies operating in the processing segment lost ground in the face of the large supermarket chains. In adopting their own "generic" brands, they also provided lower prices and lessened their dependence on suppliers even while faced by the importance of the leading brands due to the capacity of their images to influence consumer choices.

Research by Lianos and Lombardi (2016) examined power and the level of concentration of the market for agricultural produce over the extent of the food supply chain. This study arrived at conclusions pointing to losses in overall wellbeing, especially for producers with lower levels of negotiating power. Hence, the greater the concentration in the processing and retail stages, the greater the vulnerability of the interests of both farmers and consumers in the resulting supply chain.

Out of this trend emerges at least three characteristics: the existence of only a small number of buyers but on very large scales; the domination of the market by these actors, which leaves producers with few alternative outlets for their products and are compelled to maintain constant prices; and the creation of barriers to entrance as a means of pre-reserving market outputs and avoiding the arrival of any new competitors. These practices, even while low in profile, are recurrent and harmful, especially to agriculture smallholders that cannot meet the requirements imposed and are thus effectively cast out of the marketplace.

The issues around the concentration of the retail markets remain far from resolved. The trend is for them to become still more concentrated resulting from mergers and acquisitions and not uncommonly from disloyal competitive practices, which results in an unequal distribution of income over the course of the supply chain of value. What has aggravated this scenario is how such a reality has turned into common practice in an apparently inexorable process (McCorrison, 2002; McCorrison *et al.*, 2013; Kinsey, 2013; Felis and Garrido, 2015; Sexton, 2012) at least over the short and medium term.

Deriving from this trend, in many EU regions, and especially in Portugal, there are a significant number of producers harmed by processes of directly participating in the market. Even when achieving a relative performance in terms of production and productivity, this pattern reproduces and worsens inequalities in the distribution of income, continuing the rural exodus through unemployment and social and economic exclusion and regional breakdowns in economic and social development processes.

III. EU STRATEGIES TO (RE)BALANCE NEGOTIATING POWERS IN THE AGRO-FOOD SECTOR

The weaknesses of the negotiating powers of rural producers in contrast with those of the retail sector ensured that the EU, in the CAP Preforms for 2013-2020, established a whole series of strategies to re-balance this relationship of power. The recognition that farmers are frequently atomised and in need of cooperation to attain efficiency in production, commercialisation and distribution were underlying factors driving the reforms enacted to CAP.

We would duly mention that the changes ongoing to CAP reach back to the 1990s with the changes in the support regime for production shifting in favour of a regime providing direct assistance to farmer income. This transformation had downsides for rural producers and left them more exposed to the market and still further

worsening their weak powers of negotiation (To thova and Velazquez, 2012; EC, 2010).

This reform then strengthened the PO role in keeping with the satisfactory results hitherto attained. Indeed, since their launch in the 1970s, POs have spread from fruit and vegetables to cover the entire agricultural sector. The criteria for the recognition of POs feature in the European Parliament Regulation no. 1308/2013 that defines the following objectives: concentrating supply, improving commercialising, planning and tailoring production to demand, optimising production costs and establishing set prices for the producer, encouraging best practices and providing technical assistance as well as mechanisms for strengthening the position of producers within the respective supply chains (EC, 2013).

These new rules (OCM Regulation no. 1305/2013)⁴ enabled producers to jointly commercialise their products through POs. To this end, there was the need to observe the following conditions: 1) the POs are to make the farmers more efficient, providing support service that are not sales based such as storage, distribution or transport services; and 2) the volumes commercialised by the POs are not to exceed certain set limits as stipulated by the Regulation. Furthermore, POs had to accept the commitment to obtain markets for their products, manage production in relation to demand and optimise production so as to stabilise prices, among others. This furthermore involves the definition of an operational program that details both the objectives and the means to attain them. The activities described in these programs receive financing according to a 50/50 division between the PO members and the EU (GPP, 2015). In order to receive financial support, POs need to comply with certain conditions as stipulated by the Rural Development Program, in the case of specific exemptions, these are defined and decided upon according to a case by case approach (Velázquez and Buffaria, 2017; EC, 2013).

In general terms, this recognises the individual benefits to farmers from becoming members of collective organisations of the PO type. To the extent that farmers are able to aggregate their production through organising into POs, they strengthen their negotiation powers both as regards both buyers (downstream) and suppliers of inputs (upstream). Hence, in groups, producers are able to negotiate better contractual terms and conditions, which in turn reflects in higher prices and the acquisition of inputs at lower prices, among other advantages (Sexton and Zhang, 2006; Herck, 2014).

Another advantage associated with production that Herck (2014) identifies stems from the reduction of risks during the harvest period should the buyer refuse to accept the products in an attempt to force prices downwards. In this case, producers who are unable to sell

their products in due time face losses, thus, POs are able to reduce risks caused in case of any hold-up time by the buyer. Furthermore, the vertical integration strategy enables access to new sales channels, for example, whenever retailers prefer to source products in large quantities so as to cut transaction costs (Reardon *et al.*, 2003).

Additionally, membership of a PO, in addition to concentrating supply, facilitates access to new technologies and to the exchange of information. Through such structures, members obtain higher levels of earnings whenever compared with situations when acting only in isolation alongside intangible benefits such as the deepening of social cohesion, the network of partners and the development of specific competences, such as the capacity to resolve conflicts and conciliate individual interests (Herck, 2014; EC, 2014). The studies by Herck (2014) report that larger scale POs return more advantages to their producer members as they are able to concentrate larger volumes of sales, obtain better prices and generally provide more services to their members than their smaller peers. In addition, the findings report that average prices are higher in regions with strong cooperative organisations and POs.

Generally, there is a relative consensus around collective actor initiatives, such as the POs, represent one approach to mitigating the imbalances in market power. However, there remain controversies when questioning this from a broader perspective. This almost always demonstrates the benefits resulting from "strength in numbers" but this may have limitations to the extent that this objective may not be attained due to hostile market conditions as is indeed the case with the retail sector (Eastham, 2015). According to the author, the POs may have limitations on their capacities for intervention able to counterbalance the asymmetric forces or attenuate the negative effects of unequal relationships with the retailers. Furthermore, this highlights the need to consider the existence of other variables involved in this process, such as scarcity, level of participation, barriers to entry, product importance, and among others.

While differences exist around this theme, the empirical studies by Sexton (2000) corroborate the thesis that the growing concentration of the retail sector represents one of the main causes of the unequal distribution of earnings along the agro-food chain of value. Other research findings have also confirmed the unequal allocation of the value generated by the chain of production with the corresponding identification of asymmetries in the distribution of fixed costs, in the oscillations of prices and in the losses of perishable products (Felis and Garrido, 2015). Furthermore, studies have also reported on the importance of public policies

for the mitigation of the imbalances in the powers of negotiation when analysing the role of POs in counterbalancing the unequivocal relations prevailing in the marketplace (Cacchiarelli, Chiavicholi and Sorrentino, 2016).

The studies made by Velázquez and Buffaria (2017) and Severini and Sorrentino (2017) reported on the positive results obtained by the POs in demonstrating how the horizontal integration of farmers favourably impacts on their powers of negotiation towards downstream buyers. In their works, the authors analysed the regulatory framework of CAP in order to verify whether this obtains the objectives set in terms of strengthening producer powers of negotiation. The study conclusions list how the CAP's measures and instruments have contributed towards improving the efficiency and income of farmers and the wellbeing of consumers and that the defined objectives are getting met even while there remains the scope to improve on the current regulatory framework.

In general terms, with the latest CAP reforms, the POs attained greater flexibility even while also experiencing an expansion of their responsibilities especially as regards the application of operational funds. In this case, the requirements include each PO holding the capacity to define their own specific actions (Operational Programs) and guaranteeing that they align with the European policy objectives. These are the main challenges set for the POs with such demands taking on greater relevance in countries such as Portugal given its agro-food sector experiences significant weaknesses especially when compare with countries in the North of the EU.

IV. RESULTS AND DISCUSSION: THE ROLE OF THE POSIN CONCENTRATING AGRO-FOOD PRODUCTION IN PORTUGAL

The concentration of supply through POs reflects a priority factor in Portugal as enacted by Decree no. 169/2015, which transposes to the national level, EU regulation no. 1308/2013. Based on this framework, transformations have taken place in Portuguese agriculture both in economic and in social terms. In order to describe the impact of these changes on Portuguese

agriculture, we shall first set out a brief description of the general aspects regarding the founding and launching of POs in Portugal. Subsequently, we survey the general panorama of the POs recognised in Portugal and, finally, details spanning the concentration of agro-food production in the country. In order to develop this item, we made recourse to GPP (Office of Planning, Policies and General Administration) data and excerpts from interviews with key actors.

4.1 General PO panorama in Portugal

The concentration of supply represents one of the leading means of POs facing the challenges of commercialising their products in markets with oligopolistic characteristics. Hence, evaluating the performance of POs in terms of their number of members and the value of the products thereby commercialised holds relevance in a sector experiencing difficulties, as is particularly the case with Portuguese agriculture, primarily made up of smallholders.

From the regulatory performance of the CAP framework in Portugal, one of the core PO objectives is to boost the level of production organisation in order to benefit not only the producers seeking to place their products in markets but also the downstream supply chain through contributing towards greater equity in the distribution of the value generated. Furthermore, this deems improvements to the organisation of production furthermore enable the development of medium and long term strategies, lowering barriers to innovation, market access and among other opportunities.

With the goal of improving the distribution of value generated by the agro-food supply chain, the organisation and concentration of production is thus incentivised by the founding of the POs. The concentration of supply features as a priority, established by Decree no. 169/2015, which harmonised the rules for recognising POs across all the sectors covered by CAP, which made significant changes to the following aspects: reviewing the criteria for PO recognition, promotion an increase in PO scales, the appropriateness of the minimum VPC (Value of Products Commercialised) value required for PO recognition, the launch of Producer Groups (PGs), among other alterations (Decree no. 169/2015; GPP, 2015).

Table.1: Terms for Recognising POs and PAs in Portugal

Sector or Product/ Vegetable animal products	Min. num. of producers	Min. VPC in thousands of euros - POs	Min. VPC in thousands of euros - PAs
Cereals, oil and protein rich seeds, including maize	12	900	650
Cereals, oil and protein rich seeds, not	12	1800	1350

including maize			
Rice	12	1800	1350
Olive Oil	25	1500	1000
Olives	12	1000	750
Wine	12	3500	2500
Flowers	7	2300	1750
Bananas	7	15	10
FruitsandHorticulturalProducts	7	3000	N/A
Fruitswith Hard Skins	12	500	N/A
SmallFruits*	12	750	N/A
Aromaticand Medicinal Plants**	12	250	N/A
Transformed Fruits and Horticultural Products	12	1500	1200
Potato	12	2000	1500
Cork	7	1750	1350
OtherVegetableProducts	10	1000	750
Wood, BiomassandResin	10	1000	750
Beef	12	2000	1500
Pork	10	8000	5000
MilkandDairyProducts	12	8000	6000
Honeyel	10	120	90
Eggs	12	300	250
Other Vegetable and Animal Products***	10	1000	750

Source: Adapted from Decree no. 169/2015, CAP (2017) and GPP (2015).

*Blackberry, Raspberry, Redcurrant, Myrtle, Physalis, Elderberry and Strawberry Tree Fruit.

**Fresh or refrigerated aromatic and medicinal plants as stipulated in part IX of annex I of the Regulation (EU) no. 1308/2013, specifically, saffron, thyme, basil, melissa, mint, *Origanum vulgare* (oregon/wild basil), parsley, chervil, tarragon, watercress, rosemary, sage and savoury.

These legislative changes took effect in regulations that set out comparable information about the POs formally recognised in Portugal, whether attributed on the grounds of sector or product. In practical terms, this provides the scope for a producer to be a member of more than one PO (whenever producing different products) and, similarly, a PO may gain recognition for more than one sector or product (GPP, 2015).

The POs, by definition founded on the initiative of producers, have to comply with minimum levels of products commercialised and members, defined whether by sector or product as set out in table 1. The Portuguese legislation established the statute of PAs – Producer Associations as transitory structures requiring lower levels of VPC than those in effect for POs so as to enable them to adopt the measures and instruments necessary to convert into POs over a maximum period of three years (Decree no. 169/2015).

Setting up POs requires compliance with various criteria, among which features the minimum VPC level and the minimum number of producers, which may

serve as barriers to the launching of new POs. For the wine, fruit and horticultural sectors, there are minimum VPCs of between 3.5 and 3 million euros annually, amounts that doubled in relation to the previously existing legislation. Furthermore, no member may hold over 20% of the capital or the voting rights either directly or indirectly, with this holding able to rise up to a maximum of 49% whenever this percentage corresponds to the member's contributions in terms of the value of the products commercialised by the PO. However, the remaining members always have to hold at least 51% of the capital or the voting rights (Decree no. 169/2015; GPP, 2015).

Under the terms of the current legislation, Vicente (2015) maintains that the majority of Portuguese farmers face difficulties in setting up POs. There is the scope to join the existing POs but these are dominated by the large producers and distributors and in which there would be little scope for influencing the strategies or operational rules. The author demonstrates these difficulties in accordance with examples from the

Ribatejo and Oesteregions of Portugal where setting up a PO would require bringing together 135 producers in the case of the fruit sector; 154 in the horticultural sector and 890 in the wine sector. Furthermore, according to the same author, some POs recognised in Portugal were already intermediate and autonomous distributors in the marketplace. However, there is substantial pressure to join the POs as CAP financial support is to a large extent structured and dependent on such membership. Benefitting from public policies requires an exclusive commitment to a PO for a specified period of time⁵.

Another concern over the pressures to participate in POs was raised by Eastham (2014) due to the fact of members having to guarantee exclusivity over their sales to the POs in order to prevent parallel sales or members quitting. According to the latter author, over the medium term, this strategy may reduce the real impact on the revenues received by producers, not only by PO members but to all the sector. This concern has arisen due to the practice of some retailers adopting additional sources for supply as a means of reducing prices through means of threatening exclusion.

Furthermore, the pressures on producers to join POs may still further worsen the lack of coordination and the exclusion of small scale producers from the market or even from blocking the development of new POs. However, the current CAP objectives foresee POs expanding in scope and scale rather than in terms of the number of their members so as to gain negotiating powers as regards the main distribution network in accordance with the position adopted as follows:

[...] this facet of public policy (CAP) for market access, is highly active and has been a policy transversal across governments, in conjunction with their different challenges. It has also always produced, according to my analysis, a great deal of success. It is clear that if you ask who are the farmers inside these PO structures? Are they the smallholders, info-excluded, excluded, with low levels of access to technology? No, they are not! [...] Therefore, I would say that obviously those farmers that join these structures (POs) tend to be the most evolved farmers [...] in their knowledge, in understanding the problems that the market presents them with, better evolved even to the extent of education – with higher levels of education or with more specialised training, etcetera. (E1).

In this sense, the discussions on the direction of POs in Portugal generate substantial controversy as regards

the strategies in effect for the agro-food sector to raise its negotiating capacity through means of concentrating supply, however. We would highlight that expanding the POs into the diverse agricultural sectors may effectively constitute a factor capable of driving the development of the agricultural sector but also contains its own significant limitations as already detailed.

In general terms, over the period under, from 2004 to 2014, the POs recognised in the horticultural-fruit sector registered VPC growth of over 200%. Nationwide, in 2015, there were 164 recognised POs, with almost half (46%) belonging to the horticultural-fruit sector. This furthermore highlights the considerable number of recognised POs in the animal products sector (18%) and cereals, oil and protein-rich seeds (33.2%).

However, in other sectors of rural production, the level of PO representation remains poor. The cereals and meats segments display low VPCs, especially when compared with the fruit and horticultural sectors; additionally, in cases such as wine, honey, milk and olive oil, there are only a few POs representing these sectors. We would however highlight that in these cases there are strong cooperative producer organisations. These also fulfil the objectives around concentrating supply but do not hold the same function and hence were not included within the scope of the indicators under⁶.

The total value of PO products stood at 737 million euros in 2014, 580 million euros in 2013 and 550 million euros in 2012, which corresponds to growth of 27% and 34% over this period. The VPC accounted for by POs represent 11% of the total value of Portuguese agricultural. The concentration of PO commercialization between 2013 and 2014 achieved 26% growth in general terms with significant increases in certain particular sectors and products, including rice, sheep/goat meat, cereals, wine, honey and olive oil.

Subsequently, there has been continued growth in the VPC registered by POs in conjunction with their rising contribution to Portuguese agriculture, the horticultural sector has more than doubled its VPC over a decade, surging from 10% in 2005 to exceed 26% in 2014. Meanwhile, despite this progress, these figures still fall well short of the EU average (43%) (GPP, 2015). As regards the changes introduced by Decree no. 169/2015, their impacts on Portuguese POs over the medium and long term remain uncertain, whether the concentration and loss of producers shall continue or fall away to generate new asymmetries

4.2. Features of the concentration of agro-food production in Portugal

In various sectors, the Portuguese POs play important roles and especially in fruit and horticulture. As

already stated, the POs are necessarily majority controlled by farmers even while not exclusively given that the objectives extend to enabling some downstream companies to also move into production. The founding of a PO has in practice the main objective of getting a specific type of product onto the market and to this end requires associating with the companies that already have a commercial presence in the respective market. The quotation below details the role of the POs:

[...] these POs have their capital open and are therefore open to other types of entity that may bring greater value to the organisation, [...] following their foundation. Having set the PO up, there are the applications made under the auspices of CAP to types of funding: one designated the 'Operational Fund'. In practice, the organisation applies for annual support that is designed to push it forwards, ensure financial autonomy so that it can do whatever it needs to do. Furthermore, in addition to this 'Operational Fund', [...] the POs [...] may also apply to investment support measures for undertaking transformation processes and commercialising the agricultural outputs of their members. [...] This has been a very successful approach, especially for fruit and horticulture, [...] (E1).

In Portugal, the fruit and horticultural POs are organised into such as FNOP (the National Federation of Fruit and Horticultural Producer Organisations). The objectives of FNOP include defending and representing the interests of POs and APs in addition to staging events and initiatives able to promote and develop the production of their members, coordinating activities in the common interest as well as other actions, studies, training and information initiatives (Magazine 1, 2016). However, the stimulus for the concentration of production, represents the main criteria for choosing new fruit PO members:

We have experienced [...] across all the country, [...] a truly violent phenomenon in terms of the reduction in the number of producers and the increase in area per producer. The case of tomato, for example, is very significant [...]. There was genuine specialisation of producers, they produce a lot and the area under exploration per producer has also soared massively and also boosting productivity per hectare. Twenty years ago, the *Cooperativa* had around 120 tomato producers and who produced around 25,000 tons [...]. Today, the

Cooperativa has about 19 producers and with an output of almost 80,000 tons per year (E2).

These incentives for boosting productivity and expanding in scale may also further block the access of small producers to the market and effectively force them out of rural activities. The argument underpinning this stems from the need for the POs to grow in terms of scale rather than in the number of members so as to gain in negotiating powers with the major retailers, which has served to aggravate the situation faced by smallholders (Vicente 2015). According to figures from the INE (the Portuguese Institute of Statistics), in the period between 2009 and 2013, 40,800 farms disappeared from Portugal, with over 90% farming less than 20 hectares. The persistence of this strategy to expand the size of agricultural properties will only tend to accelerate the process of smallholders leaving the land. However, the stimulus for the concentration of production, represents the main criteria for choosing new PO members fruits:

[...], depending on their output, the quantity in tons that they can show us, if it's a few tons then there is some justification, above 50 tons per hectare, I suppose, 70 tons per farm, then is the justification. If it's just 10 tons, then there is not much justification in practice, therefore, [...] we do not accept members with 10 tons, 5 tons... because this becomes a cost that we incur for a low level of production (E 4).

The arguments set out by the FNOP president corroborate the positions stated by the interviewees above in terms of how "without scale, there is no capacity to deal with market challenges" and also added:

[...] the advantages of the production getting organised into POs is that we gain dimension through scale, we have greater power of negotiation, we have more capacity to supply larger markets, we have greater planning capacity, we have more and better information, indeed, we have a set of advantages already under exploration and still others for exploration [...]. (FNOP President, Magazine 1, 2016, p. 04).

Furthermore, the statement from the State Secretary of Agriculture and Food Supply follows a similar direction::

The current recognition regime contemplates[...] – not necessarily the number of POs but rather the increase in the production commercialised by these entities, fostering an increase in their average scale. This means having better POs rather than more POs.[...] Without the scale, there lacks the capacity to face the challenges of the market and a loss of effectiveness in accessing the support instruments (Magazine, 1, 2016, p. 13 and 14).

Producers, on joining POs, strengthen their negotiating position in relation to both their buyers and the suppliers of inputs, in addition to reducing the inherent risks related to their agricultural activities, benefiting from economies of scale and accessing retail channels that would otherwise be difficult individually. As members of POs, they may invest collectively in activities and services with high fixed costs, access to new technologies, improving efficiency and productivity, consequently driving the return of better income levels. However, this risks accelerating the process of excluding producers and the desertification of the rural environment as producers unable to join POs run the risk of disappearing.

In summary, through analysis of the studies, we were not able to verify any statistically significant relationship between PO size, profitability and efficiency; however, the majority of the research findings corroborate the argument put forward by the interviewees maintaining that concentration opens up opportunities for significant economies of scale and improvements in market access. Furthermore, the largest POs are more profitable as they are able to better distribute the operational costs through the commercialisation of great quantities and provide more services to its associates, especially as regards investments in technologies and management.

V. FINAL CONSIDERATIONS

In general terms, we may conclude that the Portuguese rural sector has been undergoing profound transformations. Furthermore, we may testify to the success of the stimuli to concentrating the supply of products via POs and alongside improvements to various different aspects (productivity, innovations, access to markets). However, the greatest benefits have accrued to the medium and large scale producers with smallholders facing difficulties in accessing the public incentives made available via POs due to the small size of their farms and their corresponding lack of scale (POs resist accepting producers with such characteristics).

Based on the information analysed, we may thus verify the relationship between the size, profitability and efficiency of POs. This therefore reflects convergence with the main PO objective that involves concentrating supply (strengthening the power of negotiation held by producers). The means adopted in Portugal enabled growth in the levels of commercialised PO production. With a particular emphasis on the horticultural sector that more than doubled its level of coverage over the last decade (from 10% in 2005 to 26% in 2014), this level however still remains well below the EU average (43%).

Among the limitations of this study are the lack of detailed analysis of the retail sector in Portugal and the level of concentration. Hence, this would suggest the need for future research on this issue and especially on the composition of the membership of POs in order to ascertain whether there is sustained trend to integrate medium and large scale producers to the detriment of their smaller scale peers.

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approximately 25% in Portugal against an EU average of 46%, while in Belgium and the Netherlands, this exceeds 90%. For further details, see Magrama (2015).

³Oligopsonies reflect markets in which there are few buyers and many sellers. One example of these markets comes with perishable products such as tomatoes. When producers cannot sell their produce, they have no means to store it and thus buyers, for example, supermarkets stipulate the price which they are prepared to pay given that they know that sellers have no option but to sell as otherwise their products shall perish (Vasconcelos and Garcia, 2014).

⁴Prior to this regulation, there were various OCMs each with their own rules. With the advent of this regulation, the OCM became a single entity even while there still remain different rules in effect for the various types of product, as is the case with fruit and horticultural products with a differentiated support regime to that for cereals, for example, and entirely different to the case of potatoes, which do not receive any support (Interviewee, 2).

⁵Remaining a member of the PO throughout a minimum period of at least three years or for the duration of the operational program, whenever greater, in the case of fruit and horticultural products, or for a minimum period of ten years in the case of the cork and forestry sectors (Decree no. 169/2015).

⁶Olive oil sector cooperatives account for 36%, wine 41% and milk 62% of the total value produced in each sector. This explains the lack of PO representativeness in these sectors of production even while many of these cooperatives are now undergoing PO recognition processes. To learn more about the cooperative movement in Portugal.

¹The five major distribution chains in Portugal account for 64% of the total market according to APED –the Portuguese Distribution Company Association, while in the majority of countries in the North and East of the EU, the percentages are still higher, with this percentage reaching 91% in Sweden (Berger, 2012). In 2011, in the EU, the five largest retailers accounted for over 60% in 13 member states, with a weighting of over 80% in Denmark and Estonia (Nicholson and Young, 2012; Cavicchioli, Cacchiarelli and Pretolani, 2016). For further details, see Rioux (2015).

²The number of POs varies among countries in the North of the EU that have higher rates than in the South. For example, the level of PO production stands at