THE EFFECTS OF THE CAP REFORM PROCESS ON ITALIAN OLIVE TREE FARMING

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Abstract

The decoupling process of direct payments is affecting the Italian olive oil sector's economic structure and competitiveness. The implementation of the SPS regional model, as proposed by European Commission with the Health check proposals, might further affect this sector and treat the survival of the olive-growing farms in marginal areas.

This work aims to analyse the effects of the ongoing CAP reform process on olive growers' behaviour and economic performance in southern Italy. In particular, the object area is the Apulia region that is one of the most important in Italy.

To analyse the economic impact of CAP reform on olive growers, we adopt a simulation scheme of the farm economic balance based on the definition and characterization of Representative Olive-growing Farms (ROFs) that are able to represent regional olive sector.

The analysis shows a general income reduction for the olive-growing farms, which is higher in the so-called "complete approximation of entitlements" scenario and for the medium-size holdings.

Key words: decoupling, CAP reform, olive tree farming, Representative Olive-growing Farms, economic performance.

JEL Code: Q18

Introduction

During the last fifteen years, the European agriculture had to deal with a constantly changing Common Agricultural Policy (CAP). The Mac Sharry's reform in 1992, the Agenda 2000 and the Mid-Term Reform (also known as Fischler reform) in 2003 are the main examples. The CAP has been deeply simplified to meet new international market equilibria, stricter budget constraints, and incoming consumers' needs. The last reform imposed that the largest part of economic aid for farmers have to be transferred through a Single Payment Scheme (SPS), decoupled from supply. This simplification process, as the European Commission declared by the CAP Health Check documents (Commission of the European Communities, 2007; Commission of the European Communities, 2008), will continue with the constitution of a single CMO Regulation, harmonizing the European Union's (EU) market policies.

From a general standpoint, the decoupling criterion offers farmers the opportunity to receive fixed revenue in place of variable payments. Farmers can plan their activities and choose those products that have a high market demand, avoiding misleading resource allocations. Nonetheless, in the specific case of olive tree farming the decoupling criterion seems to offer fewer opportunities than the other sectors. Olive growing differs from the other crops for some peculiar features (perennial nature of production, late first production, etc.) that heavily constraint the structural flexibility of the olive holdings and their ability to take advantage of market opportunities. Furthermore, in Italy a specific norm (National Law no. 144, February the 14th 1951) bans trees removals (with some exception) limiting crop replacement.

Also, the national olive-growing sector, and particularly the southern Italian, has to face the increasing competitiveness of the southern Mediterranean Countries, a serious risk for many olive-growing farms especially for those in marginal areas using traditional techniques.

The Italian and southern Italian olive tree farming are particularly sensitive to this problem. In Italy the olive-growing area represents the 8% of the UAA, and the olive-growers are the 47% of the total farms. The importance of olive-growing is higher in southern Italy, where the olive-growing area represents the 79% of the national olive-growing area. The first three southern regions for this crop by UAA are Apulia region (33% of the national UAA), Calabria (16%) and Sicily (14%).

If the CAP reform proposed in the Health Check (Commission of the European Communities, 2008) will be implemented, the historic support model will be converted into a regional model. This change in SPS scheme is expected to have relevant economic consequences for many olive-growing farmers.

This study aims to draw two possible scenarios that could emerge from the implementation of Health Check proposals (HC), and to esteem their effects on olive-growers' economic performance. The analysis was run for a case study in Apulia region. The

results will provide insights for the policy makers who will have to intervene to enhance farms' competitiveness and the sector survival, both at regional and national level.

The study is structured in four paragraphs and conclusions. In the second paragraph the main features of the Health Check proposals will be presented. In the third paragraph the theoretical approach and the adopted methodology will be explained. Results will be discussed in the fourth paragraph.

The CAP reform process and the Health check proposals

The Fischler Reform (Reg. (EC) No 1782/03), deeply changed the Common Agricultural Policy (CAP). The driving principle, as widely known, is decoupling of farm aids, is to say the separation between the economical supports and the farm supply. The decoupling principle has been applied by transferring all the various farm level supports schemes into a single payment.

Even though the new Regulation was first applied to a restricted set of CMOs (arable crops, beef and sheep, and dairy), it was extended to tobacco, sugar, wine, fruit and vegetables, and olive oil. The latter one, have been reformed by the Regulation (EC) No 864/2004 and Regulation (EC) No 865/2004.

While the regulation let the Member States apply a quota of coupled support (maximum 40%), the Italian Government decided for a fully decoupled historic model and planned a financial support for quality, traceability, market, and environmental programs. These programs are managed by Producer Organisations (POs) in exchange of a 5% of the direct payments. In Italy the new policy for the olive-growing sector started in the olive years 2005/2006 (Ministry of Agriculture, 2005). Apart from the limits imposed by the financial discipline, wrote to keep the spending under control, no other expenditure containment measures were provided to contain the national expenditure ceiling for the olive-growing sector. So, the olive-growing farmers are actually benefiting from about 95% of payments received in the four years of reference period.

In 2007, after a few years from the entry into force of the olive oil CMO reform, the European Commission started the assessment of the 2003 CAP reform implementation - the so-called Health check - to evaluate any possible need for further changes. In order to further simplify the CAP, to make it able to seize new market opportunities, and to meet new challenges (as climate change, water management and the bioenergy sector), on May the 20th the European Commission presented to the European Parliament legislative proposals related to the so-called Health check of the CAP. The proposals relate to three regulations: the Regulation No 1782/2003 on the SPS, the Regulation No 1234/2007 about the Single CMO, and the Regulation No 1698/2005 on rural development. While the former was substantially rewritten, the others were only partially modified. For the purposes of this work we will only briefly consider the proposals related to the first of the above Regulations, and in particular we will discuss the changes in SPS model.

After the experience of these last years, the Commission considered necessary, or desirable, the implementation of certain adjustments to the SPS model. The Commission has therefore proposed to allow the Member States to adapt their SPS model introducing rates tending to flat-rate payments, in order to make the SPS more effective, efficient and simple. Essentially, the Commission's proposals simplify and strengthen the modalities of implementation of two key instruments of the previous reform: the single payment scheme (SPS) and the compulsory modulation.

With regard to the SPS proposal, while providing the opportunity for the Member States which have adopted the historical model to retain the *status quo,* in the Health check document "Preparing for the 'Health Check' of the CAP reform" the Commission points out that "*[…] as time goes by it will become more difficult to justify differences in this support, especially in the historic model. It seems therefore appropriate to allow MS to adjust their chosen model towards a flatter rate during the period from 2009 to 2013"* (Commission of the European Communities, 2007).

In this case, there are two possibilities: the so-called "regionalization" or the "approximation" of the SPS (Frascarelli, 2008).

By choosing the "regionalization" the Member States, once defined the "regions", will have to split the national budget ceiling between the regions. A share of no more than the 50% of the regional budget ceiling would be distributed among all farmers, including those that in the historical model previously applied did not own entitlements (because in the reporting period were not receiving direct payments). The remaining part (at least the 50% of the regional budget ceiling) will be distributed among the historic beneficiaries (that is, those who had entitlements) in proportion to the rights historically accrued. The number of entitlements per farmer shall be equal to the number of hectares the farmer declares in 2010. The proposal also provides for the possibility of proceeding, after the regionalization and from 2011, to the approximation of the entitlements' values. This approximation has to be carried out over two years.

The "approximation" criterion acts, instead, only among those farmers who hold the entitlements and it must be applied to an appropriate geographical level determined according to objective and non-discriminatory criteria such as their institutional or administrative structure and/or the regional agricultural potential. The Member States may enforce the policy using different intensities: they can point to reduce disparities in the value of entitlements, or they can completely cancel the differences giving all farmers the same value of entitlements ("complete approximation"). To avoid excessive repercussions on farmers' income, the proposed regulation requires that the approximation be achieved gradually within at least three years. During this time the loss of value of each title, must not exceed the 50% of difference between its initial and final values, yearly.

With regard to the modulation, it will become compulsory and progressive especially in order to balance the distribution of financial resources between the first and second PAC

pillars. The proposal provides for an increase in the basic rate of modulation (payments between 5,000 and 99,999 €) from 5% to 13% to be achieved gradually over a 4 years period (2009 - 2012). A progressive element is introduced that will further reduce the aid amount.

It is widely recognized that both the regionalization and the approximation if applied in Italy would generate a significant redistribution of support among farms, and among sub-regional areas within the "regions" as well. This redistribution would be the result of the different production systems and of the differences in productivity levels (during the years used as a reference for the calculation of the entitlements "on the historical basis"). The redistribution will be greater in the biggest "regions" when following a per hectare payment uniformity (Anania, 2008). Also, the redistribution will be higher in those "regions" where there was a high crop variety when the single payments were introduced.

To assess the implications of the transition from the historical model to the regional model in the olive-growing sector, there are at least two issues that we believe have to be carefully considered:

a. the "drain" of resources from the olive-growing sector to other sectors;
b. the impacts of these changes on the (often) already precarious revenues of olive-growing farms, which could, in some cases, start paths towards farm abandoning.

To understand the changes in both the direct payments that the olive-growing farms would receive and the resulting transfer from the olive-growing sector to other sectors, assuming complete approximation of the entitlements at administrative regional level, we estimate an average per hectare support reduction of the 53%, going from 905 to 429 € per hectare, with a drain of resources about 147 million € only in Apulia region. Less serious consequences would have the "regionalization" option, assuming again the administrative regional level as the reference region, that would lead to a reduction of the average title of "only" the 28%, from 905 to 653 € per hectare, with a loss of 78 million € for the Apulian olive-growing sector.

Obviously, it is not easy to predict what will be the effects of the Health Check proposals on the olive-growing farms' profitability, and on the olive-growing farms' ability to resist to this exogenous shock. Unpredictability is mainly due to the great variability of the farms' structure and organizational models that characterizes this sector. In Apulia region, particularly, farms greatly vary in size, management system, production techniques and cultivation features. All these factors lead to a wide variability of economic performances that makes it necessary to differentiate by area and farm type to analyze the possible "micro" impacts of the Health Check proposals.

Theoretical and methodological approach

The Representative Olive-growing Farms (ROFs): an analytic tool to evaluate economic performances

The economic agricultural farms' performances, the return on inputs, and the evolutionary pathways of the farming systems, are all determined by a combination of endogenous and exogenous factors. The first set includes the context's features (physical, economic and social characteristics), and the agricultural and rural policies. The second set includes the structural and organizational characteristics of the farming systems, the technical and managerial entrepreneurs' abilities, the production technologies, the relations with the input and output markets (Cafiero, Cembalo, Cioffi, 2005).

As regards the olive oil sector, in Apulia region there is a broad territorial differentiation that reflects the range of natural, social and institutional local features, so it is possible to recognize more than one regional olive tree farming. Furthermore, there is a great variety of olive-growing farms depending on the economic size, on the structural characteristics, on the organizational features, on the managerial and relational abilities.

To better understand this complexity, and to test the potential impacts of the Health Check proposals, it has been decided to use a research methodology that is structured around four stages:

1. zoning the region to identify different homogeneous regional olive growing's areas;
2. identification and characterization of farm typologies that prevail in each homogeneous area;
3. budget analysis to evaluate the current economic performances of each farm typology;
4. simulation, through the budget analysis, of different scenarios with respect to the different Health Check SPS's reform proposals.

By zoning the region it is possible to grasp the characteristics of the context, clustering Apulia region in sub-provincial areas, homogeneous for type of olive cultivation. The choice of a provincial level enables to account for both social and institutional differences, and for the most relevant political-administrative competences in agriculture. It has been performed an expert zoning combining the official olive-growing's statistics (ISTAT, 2000; INEA, 2006; AGEA, 2006) with information gathered through a structured questionnaire. The survey was conducted by a panel of experts that operate in the 5 provinces of Apulia region. The criteria included in the survey are: pedoclimatic and agronomic conditions, the prevailing farm characteristics (age of the trees, cultivars, etc.), and the main cultivation techniques.

To define the endogenous features of major regional olive-growing farm typologies the most representative typologies have been identified within each homogeneous area (De Gennaro, Casieri, Roselli, 2007). This process resulted in a set of farm models (hereinafter referred to as ROF: Representative Olive-growing Farm) that meet the structural, organizational, and relational features and the cultivation techniques that prevails within each

homogeneous area. To identify the ROFs of each area we referred to the Farm Accountancy Data Network parameters of both the TF (Types of Farming) and the ESU (European Size Unit) and using data from the National Census of Agriculture (ISTAT, 2000).

Regarding the TF it has been decided to limit the analysis to the "TF specialist olives", is to say those farms that derive more than 2/3s of their total standard gross margin (SGM) from the olive-growing farming. These farms represent, in fact, the greatest quota of the Apulian olive-growers: 70% of total olive-growing farms and 76% of UAA cultivated with olives. Regarding the economic dimension (ESU) we decided to ignore too small farms (less than 1 ESU). Finally, four typological classes were identified for each homogeneous area:

1. small size farms (TF: Olive growing; Economic Size: 1-4 ESU, farms with a SGM between 1,200 and € € 4800)
2. small to medium size farms (TF: Olive growing; Economic Size: 4 and 8 ESU, farms with a SGM between 4,800 and € € 9600);
3. medium to large size farms (TF: Olive growing; Economic Size: 8 and 16 ESU, farms with a SGM between 9,600 and € € 19,200);
4. large size farms (TF: Olive growing; Economic Size: more than 16 ESU, farms with a SGM exceeding standards € 19,200).

The ROFs identified were subsequently characterized on the basis of the information resulting from official statistics available (ISTAT, 2000; INEA, 2006; AGEA, 2006) and, above all, through structured questionnaires and technical experts from different provincial olive-growing area. The survey data include prevalent characteristic of each farm typology and homogeneous area and their average production, while the input and output prices (olives for oil, oil and wood production) refer to the harvesting season 2005/2006.

The information collected (see table 1 for a brief summary), namely structural and organizational data, cultivation techniques, purchased input, output marketed and marketing strategies, the relational position within the supply-chain, were used for the budget analysis using a specific software, "bilagro", that enables to draw farm budgets (Marenco, 2005).

Table 1 - ROFs variables

Variables
Economic size (ESU)
Specialisation (TF)
Localization (homogeneous sub-provincial olive growing's areas)
Total UAA of farm (Ha)
UAA cultivated to olive (Ha)
UAA irrigated (Ha)
Crop assortment (crops other than olive)
Type of holding management
Total labour (AWU)
Family labour (AWU)
Agricultural machinery and equipment
Olive's cultivation features
Cultivation techniques
Supply-chain position (market relations and marketing strategies)

The budget analysis was carried out according to a classic outline (De Benedictis, Cosentino, 1979) and it is based on the following main criteria:

- the use of machinery and labour was calculated as hours attributable to the individual farming operations;
- the hourly cost of labour was calculated as the full farm cost (including the contribution charges) for each province;
- the cost of family labour, given the labour market conditions in Southern Italy, has not been estimated;
- the cost of machinery was calculated according to the annual costs of fuels, lubricants, replacements, maintenance and insurance;
- the olive trees replacement costs was calculated by assuming 100 years life-long, while for the machinery and equipment it was used a variable duration depending on the kind of machine and/ or equipment;
- the land interest's rate, as well as those on capital, has been calculated applying a 3% rate.

The first phase of the budget analysis served to assess the current ability to generate income for each specific farm typology. Subsequently, using again the budget analysis, the effects of two different possible scenarios for the Health Check SPS's reform proposals were simulated. Both for the assessment of the current ROFs' economic performance and for the comparison between the different scenarios, it was used the Family Farm Income[1] (FFI) and the Labour, Land and Entrepreneurial remuneration Income[2] (LLEI). To assess the current economic performance of olive-growing farms, we considered both the total and per hectare

[1] Remuneration to fixed factors of production of the family (work, land and capital) and remuneration to the entrepreneur's risks (loss/profit) in the accounting year.

FFI and LLEI, the production costs per hectare (explicit costs), and the incidence of direct payments (value of entitlements) on the two adopted measures of income (FFI and LLEI). Finally, to simulate the effects of different HC implementation scenarios, the effects on profitability were calculated as percentage change in the FFI.

The policy scenarios

Over the past years, the EU support policy for the olive oil sector significantly affected the farms' economic performance, (the production function) the choice of the final output (extra-virgin olive oil, virgin oil or lampante virgin olive oil), and how to produce (intensive or extensive techniques).

In this analysis two scenarios are simulated other than the maintaining the *status quo*. The two scenarios are: "complete approximation of entitlements" and a "regionalization of 50% of regional budget ceiling". The short-term impacts of these two hypotheses are assessed on each ROF. We chose a short term, because the analysis verified the effects on economic performance using static farm models that only simulates changes of EU support on fixed crop choices, cultivation techniques and market conditions.

It is reasonable to assume that the farms do not respond instantly to changes in the economic scenario, so that in the short term, farms do not change their operating framework. Within a certain number of years, the farms will adjust to reach the highest possible level of income, given the qualitative and quantitative characterization of farm's resources and constraints. The analysis, then, allows only understanding the impact of policy changes on the ROFs, highlighting the differences of responses to the SPS variation.

The *status quo* is the scenario that provides for the continuation of the support currently provided the olive oil sector since the 2005/2006 harvesting season. To calculate the actual average value of entitlements given to the olive-growing farms in Apulia region, differentiated by province and homogeneous area, we used data supplied directly by AGEA (National Agency for the management of aids in agriculture) about the average olive-growing area eligible for SPS and the average budget reference allocated to the olive-growing farms during decoupling procedure (olive year 2005/2006). At the present, the budget provided as entitlements to the olive oil sector in Apulia region, amounted to approximately 279 millions of euros, for a reference olive-growing area of 308 thousands of hectares, and an average regional value of entitlements of 905 €/Ha.

The "complete approximation of the entitlements" is the scenario that provides for the levelling of entitlements between all farmers that beneficiated of the historic SPS. We hypothesized that the reference regions adopted by the Italian Government match with the regional administrative level, and that the levelling of entitlements, in 2012, would result in a value of entitlements equal for all the "historical" farms. To estimate the value of payments

[2] Remuneration to fixed factors of production of the family, excepted capital, and remuneration to the entrepreneurs risks (loss/profit) in the accounting year.

under this scenario we use AGEA data, both to estimate the total Apulian budget ceiling and the "total historic area".

The "regionalization" scenario was constructed assuming that regionalization is implemented by 50% of the regional budget ceiling, while the remaining 50% is allocated in proportion to the value of the entitlements of the historic farmers-beneficiaries of the SPS, and that the reference regions adopted by the Italian Government are the regional administrative level. It has been neglected the option for a future 2 stages entitlements approximation. For this scenario the value of entitlements for each ROF was estimated using AGEA and ISTAT data, both to estimate the total Apulian budget ceiling, the current average value of entitlements of each ROF, the "historic area" and the future eligible area in 2010.

To construct both the scenarios ("approximation of entitlements" and "regionalization of 50% of regional budget ceiling") we have hypothesized a 10% reduction in the regional budget ceiling to finance the measures provided by the article no. 68 of the draft regulation (ex-art. 69). To calculate the net value of entitlements of each ROF we applied the compulsory modulation scheme proposed for 2012 by the European Commission's proposal.

The analysis

Apulian olive tree farming

Apulia region is one of the Italian regions mostly characterized by the presence of olive, which can be found in every municipality and occupies the 30% of the regional UAA, corresponding to 339 thousand hectares of the entire regional UAA (ISTAT, 2000).

The olive regional heritage consists of approximately 42 million olive trees (AGEA, 2008) and the farms involved in this production were, according to census data, over 269 thousand (76% of the total number of farms) in 2000. According to data provided by AGEA (AGEA, 2008) there were just over 300 thousands farms with olive grows for oil production during the reference period used to establish the value of entitlements (harvesting seasons 1999/00, 2000/01, 2001/02, 2002/03), 225 thousands farms were awarded with entitlements in olive year 2005/2006. These former farms cultivate an olive-growing area, which is used to calculate the entitlements, of about 308 thousands hectares, approximately 41 million olive trees.

In 2000 the average size of olive-growing farms in Apulia region (1.2 Ha), although higher than the national average (0.89 Ha), was very low and it was even smaller than the previous census (1.4 Ha). Intense fragmentation is the main feature of olive cultivation: many small holdings, often farmed on a part-time basis. Of all the farms that grow olive trees, about the 73% has a dimension of less than 2 UAA hectares, and almost the 95% has a size of less than 10 UAA hectares. Given, however, the allocation of the area to olive trees, farms smaller than the 2 hectares covers only the 33% of the area, and for the farms smaller than 10 hectares the percentage rises to 68% of the regional olive-growing area. The olive-growing farms with

an economic dimension smaller than 4 ESU are approximately the 74% of the total UAA, and they cover a little over the 32% of the total area cultivated to olive. On the other hand, the farms larger than 40 ESU are less than the 2% and they hold more than the 20% of the area. The remaining 24% of the farms have a size between 4 and 40 ESU and they cultivate nearly the 47% of olive-growing area.

Most of the olive-growing farms (70%) are specialized (TF specialist olives), and they cultivate about the 76% of the regional area covered with olives. The 82% of these farms are smaller than 4 ESU, they cultivate the 37% of the UAA to olive-growing, and the 89% of them are conducted directly with the predominant or exclusive use of family labour.

Apulia region includes many olive-growing areas that differ by several aspects: from the natural, social and institutional conditions, to the wide plurality of farm typologies, production techniques and oil qualities. In this work are presented the results of the economic analysis of representative olive-growing farms and an assessment of the effects of two HC scenarios in the province of Taranto. Using the methodology described in paragraph above, we identified two homogeneous areas within the province of Taranto. For each homogeneous area were subsequently identified and characterized four different types of olive-growing farms (ROF) representative of each olive-growing area.

Results

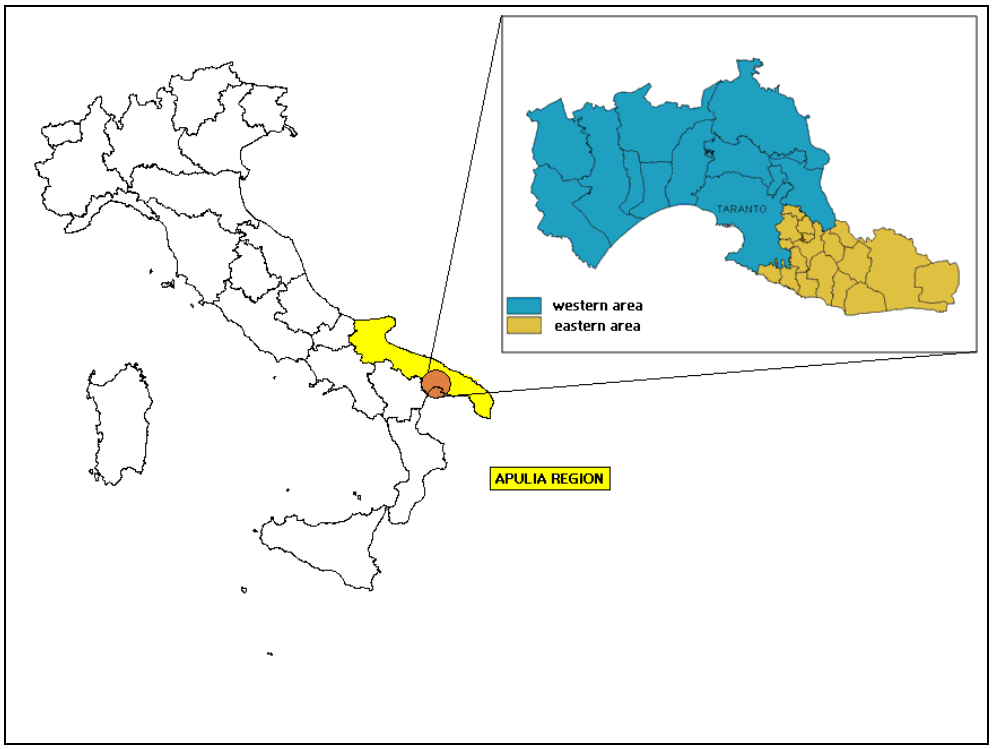
Olive tree farming in the Province of Taranto: the homogeneous olive-growing areas and the ROFs

According to the National Agricultural Census (ISTAT, 2000), the olive-growing in the Province of Taranto involves more than 29 thousands olive-growing farms, covering almost 34 thousand hectares, the 10% of the regional olive-growing area, and counting about 4.6 million trees (AGEA, 2008). Almost all the olive-growing farms produce olive for oil production (98%), more than 17 thousands farms are specialized (59% of total) and they cover more than 22 thousand hectares (66% of the total olive-growing area). The specialized farms smaller than 1 ESU are nearly the 37% of the total number of farms, while the farms up to 4 ESU reach the 87% and they cover just the 40% of the olive-growing area of the Province of Taranto.

Using an expert classification two homogeneous areas were firstly identified. Secondly the ROFs were identified and characterized. Two homogeneous olive-growing areas localized in the Province of Taranto (Figure 1) are:

1. western area;
2. an eastern area.

Figure 1 – The homogeneous olive-growing areas in the Province of Taranto.



The eastern area is characterized by the dominance of secular olive trees, while the western area presents a higher incidence of the most modern plantation. In addition, the two areas differ mainly for crop varieties and cultivation techniques (De Gennaro, 1996; De Gennaro, 2005). The two areas present the same harvesting techniques, same olive oil quality (extra-virgin olive oil) and a low economic relevance of cooperatives. In both the areas the olive-growing farms cultivated, in addition to olive tree, vineyards and wheat in rotation with fodder. Irrigation is widespread, with the only exception of the small size ROF. The water source comes mainly from public water network, although the largest farms are equipped with artesian wells. The most widely spread irrigation system is the drop irrigation system.

ROFs' budget analysis: the status quo

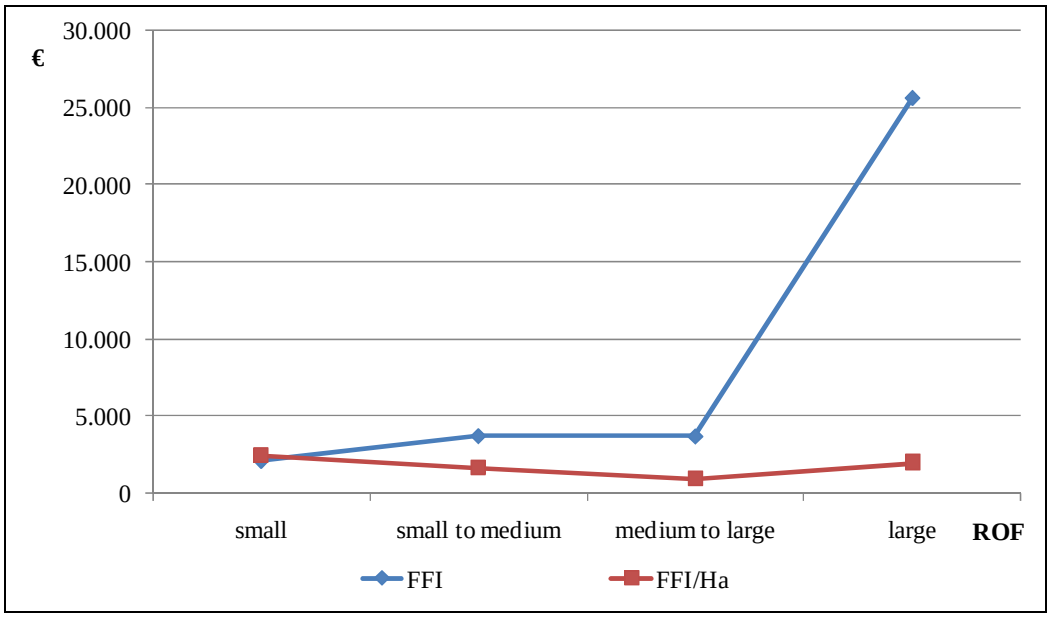
To evaluate the ROF's economic performance, a set of indexes was calculated (Table 2). These indexes highlight the differences in income (FFI and LLEI), production cost (explicit costs), and relative incidence of the Single Payment on income.

Figure 2 shows the trend of the average values of FFI and FFI (total values and values per hectare) for all the ROFs analyzed in the province of Taranto.

Table 2 - Economic performance of ROFs: status quo analysis

Indexes	Representative Olive-growing Farms - western area			
	small size	small to medium size	medium to large size	large size
UAA (Ha)	0.81	2.16	3.80	20.25
FFI (€)	1,904	3,097	2,449	32,947
LLEI (€)	1,699	1,890	191	27,588
FFI/Ha (€/Ha)	2,351	1,434	644	1,627
LLEI/Ha (€/Ha)	2,098	875	50	1,362
SP Subsidies/FFI (%)	31.9	52.3	116.5	46.1
SP Subsidies/LLEI (%)	35.8	85.8	1496.3	55.1
Explicit costs/Ha (€/Ha)	737	556	864	1,103
Indexes	**Representative Olive-growing Farms - eastern area**			
	small size	**small to medium size**	**medium to large size**	**large size**
UAA (Ha)	0.87	2.19	3.84	15.02
FFI (€)	613	2,272	4,717	36,137
LLEI (€)	-155	1,330	2,891	31,365
FFI/Ha (€/Ha)	704	1,037	1,228	2,406
LLEI/Ha (€/Ha)	-178	607	753	2,088
SP Subsidies/FFI (%)	122.0	82.8	69.9	35.7
SP Subsidies/LLEI (%)	481.6	141.4	114.1	41.1
Explicit costs/Ha (€/Ha)	483	382	1,310	1,314

Figure 2 – Average values of FFI of ROF.



A detailed analysis of the indexes produced for each ROF immediately shows how the FFI is always positive, and, as we could expect, the FFI improves with the growth of the ROFs' economic size.

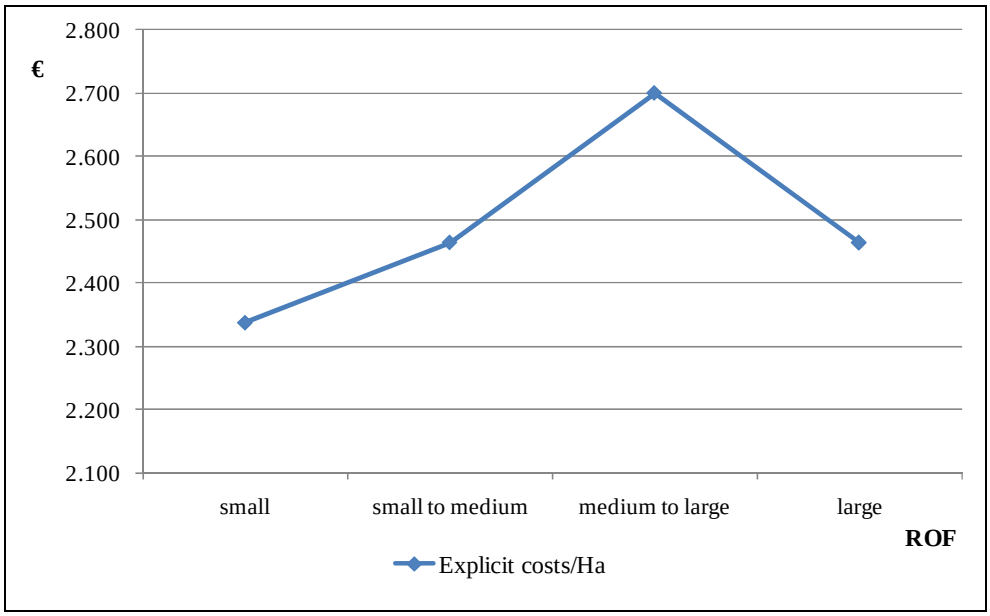
The ROF with the highest FFI is the largest ROF in the eastern province. It excesses, albeit slightly, 36 thousand euros of income. This result depends on several factors ranging from relatively young olive groves, to the regular density plantings and the use of irrigation systems, that leverage the production. By contrast, the ROF with the lowest FFI is the

smallest ROF in the eastern province of Taranto. In this case the FFI amounts to 612 euros. This result can be addressed, in addition to the small size, to the low per hectare output, to the absence of irrigation, to the failure of associative systems.

The situation remains basically unchanged when we analyze the FFI per hectare. Again, the ROF with the best result is in the eastern province of Taranto and, once again, it is the greatest ROF (2.406 € / Ha). The lowest FFI per hectare, just 644 euros, can be found in the western area, in the medium-sized ROF. This is the consequence of an oversized stock of agricultural machinery and equipment, that affects all the analyzed ROFs, particularly the medium sized. This result is even more evident looking at the LLEI indexes. In this case, the small ROF in the eastern province of Taranto has a negative LLEI, suggesting that this ROF is not able to payback the entrepreneurial and family factors. The same ROF shows the highest rate of subsidies on income, then the most CAP's aid dependent

Finally, we calculated the explicit costs per hectare. Figure 3 shows the trend of the explicit average costs per hectare.

Figure 3 – Average values of explicit costs of ROFs.



The per hectare explicit costs index, calculated for the olive-growing area, allows to infer about the different farm typologies by the structure of the production costs. The average per hectare explicit costs, that includes the crop-specific costs and the external labour costs, shows a decreasing trend, moving from the smaller ROF to the small-mid-sized ROF. From this point the trend becomes positively sloped, and it reaches its maximum value at the greatest farm typology.

The crop-specific costs, that include all costs for the crop-specific inputs and external services (basically outsourcing contracts for the crop cultivation), increase moving from the small ROF toward the medium-sized ROF, but they decrease for the large farm typology,

mainly because of economies of scale. The costs of non-family labour matters only in the medium-sized and large farms.

Analysis of two possible HC scenarios: "complete approximation of entitlements" and "regionalization of 50% of regional budget ceiling"

The next two tables (Tables 3 and 4) show the same indexes already discussed in the *status quo* scenario, calculated for the two hypothetical scenarios drawn in this study: the "complete approximation of entitlements" and the "regionalization of 50% of regional budget ceiling". In these two simulations the explicit costs are not reported, because the costs structure was assumed to be (at least in the short term) the same of the *status quo*. It has been calculated the percentage change in FFI in the two scenarios with respect to the economic result in the *status quo*. All the ROFs show a generalized worsening of their economic performance. Particularly, in both the scenarios all the ROFs have a FFI reduction (Figure 5).

Like in the *status quo* scenario, the negative effects are more relevant for the average size ROFs (both small to medium size and medium to large size). In the approximation scenario the percentage variation of FFI ranges between the -13.8% for small ROF in the western area, and the -61.0% for the small ROF in the eastern area. On the other side, in the regionalization scenario the percentage variation of FFI ranges from - 7.6% to the - 32.6%. The biggest and the smallest ROFs are the same as the previous scenario.

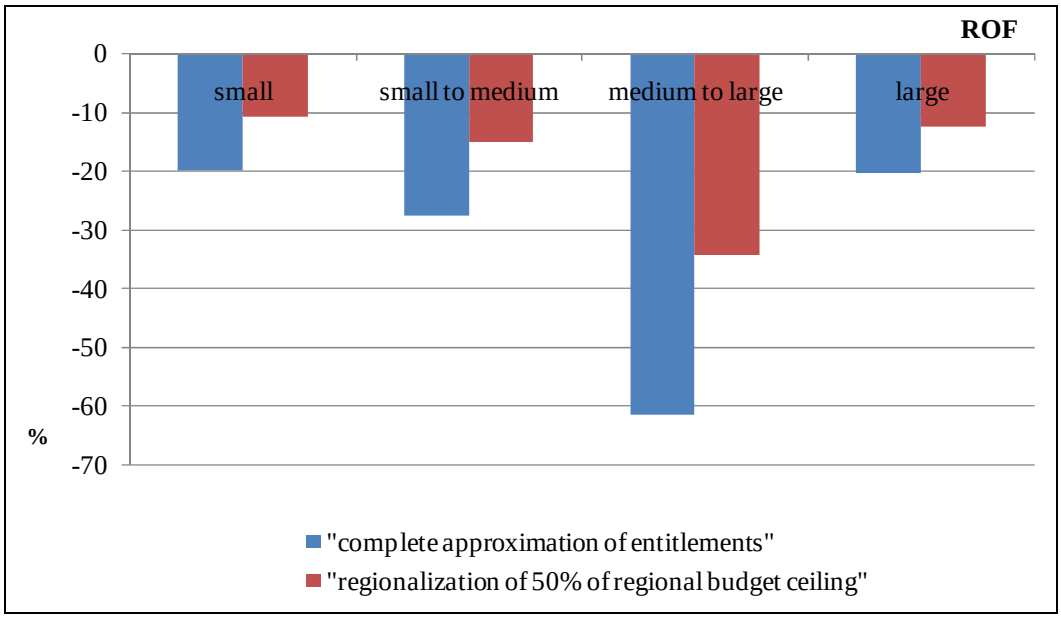
Table 3 - Economic performance of ROFs: "complete approximation of entitlements" scenario

Indexes	**Representative Olive-growing Farms - western area**			
	small size	**small to medium size**	**medium to large size**	**large size**
UAA (Ha)	0.81	2.16	3.80	20.25
FFI (€)	1,642	2,402	1,228	25,961
LLEI (€)	1,437	1,195	-1,030	20,603
FFI/Ha (€/Ha)	2,027	1,112	323	1,282
LLEI/Ha (€/Ha)	1,774	553	-271	1,017
SP Subsidies/FFI (%)	21.1	38.6	132.8	31.6
SP Subsidies/LLEI (%)	24.1	77.5	158.4	39.9
Variation of FFI (%)	-13.8	-22.4	-49.8	-21.2
Indexes	**Representative Olive-growing Farms - eastern area**			
	small size	**small to medium size**	**medium to large size**	**large size**
UAA (Ha)	0.87	2.19	3.84	15.02
FFI (€)	239	1,331	3,068	29,497
LLEI (€)	-529	389	1,242	24,725
FFI/Ha (€/Ha)	275	608	799	1,964
LLEI/Ha (€/Ha)	-608	178	323	1,646
SP Subsidies/FFI (%)	156.4	70.6	53.7	21.2
SP Subsidies/LLEI (%)	70.6	241.6	132.8	25.3
Variation of FFI (%)	-61.0	-41.4	-35	-18.4

Table 4 - Economic performance of ROFs: "regionalization of 50% of regional budget ceiling"

Indexes	Representative Olive-growing Farms - western area			
	small size	small to medium size	medium to large size	large size
UAA (Ha)	0.81	2.16	3.80	20.25
FFI (€)	1,760	2,717	1,783	28,532
LLEI (€)	1,554	1,510	-475	23,174
FFI/Ha (€/Ha)	2,172	1,258	469	1,409
LLEI/Ha (€/Ha)	1,919	699	-125	1,144
SP Subsidies/FFI (%)	26.3	45.7	122.6	37.8
SP Subsidies/LLEI (%)	29.8	82.2	460.0	46.5
Variation of FFI (%)	-7.6	-12.3	-27.2	-13.4
Indexes	**Representative Olive-growing Farms - eastern area**			
	small size	**small to medium size**	**medium to large size**	**large size**
UAA (Ha)	0.87	2.19	3.84	15.02
FFI (€)	413	1,770	3,837	32,112
LLEI (€)	-355	827	2,010	27,340
FFI/Ha (€/Ha)	475	808	999	2,138
LLEI/Ha (€/Ha)	-408	378	524	1,820
SP Subsidies/FFI (%)	132.6	77.9	63.0	27.6
SP Subsidies/LLEI (%)	154.4	166.6	120.2	32.5
Variation of FFI (%)	-32.6	-22.1	-18.7	-11.1

Figure 4 – Average percentage variation of FFI shifting from *status quo* to two hypothesized scenarios.



Concluding remarks

When evaluating the Health check reform proposals, policy makers should pay attention to the impacts that the CAP reform implementation tout court might have on the maintenance of regional olive oil sector. The analysis clearly shows a general income reduction for the olive-growing farms in Apulia region, which is higher in the so-called "complete approximation of entitlements" scenario. The medium-sized holdings are the most affected, with broader income reductions. These farms, more than others, struggle to find an economic equilibrium.

The income support reduction provided so far to the olive-growing farms would also imply a higher income instability resulting from the twofold effect of uncertainty of market prices and of lower level of guaranteed income. In other words, farms would be more vulnerable to the market fluctuations. In this regard it should be pointed out that the unexpected situation of the global and national agriculture in 2007, the general and substantial rising prices of many agricultural products (cereals, soya, milk, etc..), has not involved the olive oil sector that is paying, instead, strongly negatively sloped price trends.

Within this difficult market scenario, not all the olive-growing farms that today survive with low margins of profitability, given the current level of income support, will be able to face further direct payments reduction as envisaged by the HC proposals. These farms will probably not be able to face an increasingly competitive market.

A policy instruments to offset, in particular situations, the reduction of farm support could come from the article No. 68 of the draft regulation (former art. 69), that has a more flexible application and a broadened scope. The member states, in fact, may take up to 10% of the national ceiling:

a) to grant an additional annual payment to farmers who undertake in the following areas: specific types of farming, agricultural products quality improvements, improved marketing;
b) to grant a per head or per hectare payment, to address specific disadvantages that affect farmers in the dairy, beef, sheep and goat meat and rice sectors, in economically vulnerable or environmentally sensitive areas;
c) to increase the entitlements amount and/or their number, in those areas subject to restructuring and/or development programs, in order to prevent the abandon of the land or to address specific disadvantages for farmers in those areas;
d) to provide a compensatory payment on crop insurance;
e) to provide a mutual funds for animal or plant diseases.

In particular, option c) could be a useful policy instruments to promote olive plantation restructuring in mountainous and hilly areas, in order to avoid the olive-growing farmers to abandon, that in many cases have no real economic alternatives, play an important role defending from hydrogeological damages and offer a fundamental contribution in defining the rural landscape. These aspects are addressed in a rather superficially way in the Regulation proposal, not consistent with the implicit aim of sustainability. The criterion for the proposed redistribution of direct payments, in fact, does not take into account the positive externalities that these kinds of farms offer the community. This is especially true for the olive tree farming that is crucial for the characterization of Mediterranean landscapes, but also because of the large use of techniques with low environmental impact, including an effective ecological and sustainable crop management.

On the basis of these considerations, it seems clear that it is not possible to give an unambiguous and definitive judgment on the effects of the proposed reform on the sector's stability. Much will depend on the policy choices to be made in the incoming months.

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