

HUMAN CAPITAL AND FAMILY FARM IN THE OLIVE GROWING SYSTEM OF THE CALABRIA REGION

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**Paper prepared for presentation at the 113th EAAE Seminar
“THE ROLE OF KNOWLEDGE, INNOVATION AND HUMAN CAPITAL
IN MULTIFUNCTIONAL AGRICULTURE AND TERRITORIAL RURAL
DEVELOPMENT”, Belgrade, Republic of Serbia
December 9-11, 2009**

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Abstract

This research aims at pointing out those constraints and incentives conditioning family farm choices about investments, technical and managerial knowledge and expertise. The planned target has to be achieved through the attainment of three stages. Family farm involves a lot of people by different kind of employee relations, based mostly on a temporary work, that are often within the limits of the work rules. The organization solutions adopted by family farm produce several effects: among which investments and human capital allotment stand out.

This research analyses family farm characteristics in a local rural system of the Calabria Region, as the result of the various European Community and domestic interventions and the specific physical, social and economic features in the considered territory; the attention is focused on the olive growing family farm. The survey is made through interviews carried out by qualified operators using questionnaires organized on different modules.

Key words: human capital, family farm, agricultural labour

1. Introduction

Issues relating to agricultural activity carried out in family businesses by off workers and by members of the family farm, are now in an ever more pressing in modern society. The adoption of specific organizational solutions by the farm family gives implications of various kinds, such as that relating to investment and human capital endowment. Among the many factors that contribute to the formation and accumulation of human capital is intuitive given special importance to training and updating skills, performed by the various institutions. Indeed, in the recently formulated strategic guidelines at European level, training and education are mentioned as strategic actions in both of the measures aimed at promoting knowledge and improving human potential and actions aimed at the diversification of the rural economy. The study of the labor market in agriculture has, in particular, several emerging issues and interesting for their productive, economic and social reflections, which can be traced back to the central problem of the different ways that you can follow to promote the formation of a balance between demand and supply of labor. A problem is the presence of immigrant workers, emphasizing the need for flexible forms of work.

On the other hand, the market of agricultural work, while retaining many of its specific field, expressed earlier than other sectors certain characters of precariousness and flexibility of the workforce, and in recent decades it gradually crushed in a variety of

segmented markets, characterized by different conditions of use and stability (joint work, skilled, seasonal, etc.) and employment schemes also very complex that, especially in southern Italy, are focused mainly on a mixture of figures involved in the agricultural sector to different ways (as employees, owners of small farmers and tenants, etc.). And this is especially in relation to the presence of agricultural holdings and part-time workers that, during the year, place themselves on the demand side (looking for workers during the period of the peak of their company) or on the supply side (they offer their work at other) (Nicolosi 1998, Carrà 1993). In this context, family farms have unique characteristics and management models based on the superimposition of multiple of economic and non-economic objectives and functional to the organization of the family.

These trends show the need to allow for investigations of the labor market in agriculture in order to pick the changes under way and provide appropriate interventions to support.

This study represents a first contribution to the research currently in progress on models for the administration of olive farms in the province of Reggio Calabria¹, and after having explained the methodology and the main characteristics of the area of investigation, this area is examined on the basis of the ISTAT data on the Local Labor Systems (SLL) and of INPS data of the province of Reggio Calabria. Finally, a survey was carried out directly in the ground on a reasonable piece of firms olive family.

2. Survey methodology

The research was conducted using primarily ISTAT database about the Local Labor Systems (SLL) as observation unit of the investigated phenomena. This database has been integrated with the INPS database (with reference to the province of Reggio Calabria) which records the employees from the complaints lodged by employers and the findings made by the same Institute. It should be noted that the INPS data understate the agricultural work, as they concern only of regular employment and therefore do not include undocumented workers and the phenomenon of pay. Moreover the welfare system, designed to protect workers who gravitate in agriculture as a "weak area" of the labor force for the particular conditions of employment that the sector offers (discontinuity, seasonality, lack of qualification, etc.), allows access to the system of guarantees for a large portion of rural population, ensuring a system of protection and a horizontal extension to those who are qualified and providing a bridge to a social redistribution of income not only for the agricultural sector (people who are activated only occasionally in order to access

¹ The work is part of a broader research project, entitled *Management models and analysis tools of human capital in farm households* (PRIN 2007 - Unit of Sassari, Organizer: Pietro Pulina), part of the national project *"Identification and validation of evaluation tools of human capital in agriculture"* (National Coordinator: Dario Casati).

social security benefits), but also for those forms of precarious employment in the unsecured non-agricultural sectors (Carrà 1993, Nicolosi 1998).

This preliminary phase was followed by a more detailed investigation directly in the ground which allowed the preparation of a sampling plan for the subsequent detection of a reasonable sample of family owned olive farms.

The theory that was adopted in the research is that the family owned olive farms, carrying out the work required by the company, are by many factors such as farm size, the existence of specific job alternatives and family engagement in farms and extra farms activities; the level of integration of the farm household which are multi active in the territory; existing legislation relating to welfare and social assistance; the capital structure of the household and the availability of resources, including financial, to be devoted to skills training in the family, etc. These influences combine with the specific conditions of the farm household, and in particular with the phase of the life cycle of the family.

To answer these questions a survey was conducted using a panel of data collected among the holders of olive family businesses in the province of Reggio Calabria.

3. Structural characteristics of Calabrese olive

In Calabria olives agriculture is the most representative both in terms of economic, intercepting 30% of the gross marketable production, and structural importance (with about 170 thousand hectares and over 20 million plants), and also for the consequent impact on the environment and landscape. Its significance is also considerable in relation to the national context, affecting approximately 16% of the olive trees and more than 20% of Italian production of oil, and international (9% and 7% respectively of the product in the EU and worldwide). Olive production, more often than not, has a marginal role from an economic-productive perspective, but extremely important from the point of view of landscape, for the use of territories otherwise destined to the abandonment.

The companies analyzed by ISTAT in 2000, in Calabria, are 196,354, with an average area of 4.66 Ha. Olive farms are little more than 70% (138,000) with an average area of 1.20 Ha, for a production of 6.5 million quintals of olives and some 1.5 million tons of oil.

The structural arrangement is highly pulverized, the 90.9% of farms have less than 5 Ha of agricultural area utilized for farming, only 8,6% had an area between 10 and 20 has (Table 1). The remaining percentage is larger than 20 Ha. Regional structural weakness of the business is compounded by the wide prevalence of hilly and mountainous areas reaching almost 90% of regional agricultural area.

Table 1 – N. of farms and olive-growing areas (Ha) for classes of surface.

Classes, Ha	Farms	% of farms	Surface Ha	% of surface
until 5	125.381	90,9	88.892,28	53,8
from 5 to 20	11.848	8,6	54.436,44	32,9
over 20	709	0,5	21.968,56	13,3
Total	137.938	100	165.297,28	100

Source: Census, ISTAT 2000.

Companies have difficulties to guarantee employment to the availability of family labor, only 16.4% of these could potentially occupy a full-time employee. The conductor makes the whole enterprise work load, usually accompanied by a familiar (wife and / or children). However, the weight taken by non-family workers (23%) is higher than the national average (13.8%), this is attributable to the specificity of the prevailing production systems: olive and citrus leading to a greater concentration of workers in some periods (particularly in the harvesting).

The phenomena of underemployment of the available family members of workers appear to be widespread and substantial, in fact the relationship between companies whose conductor has its own non-farm activities and the total holdings amounted to 29%; considering the small size company report is very low.

The picture worsens when one considers the age and level of education of conductors: slightly more than 18.3% are under 44 years (compared with a national average of 11%), only 10% have a high school diploma, this would significantly affect the dissemination and adoption of tools to ensure quality of product and process. The olive oil sector, in particular, requires technological innovations aimed at the quality of product. Mechanization is globally acceptable considering the terrain and the limited availability of land suitable for mechanical (for example, the excessive slope).

Over the past two decades (before the start of the period of crisis in the market), a process of structural change and expansion of the industry took place in Calabria, in large part due to favorable market prospects of olive oil and contemporary public action aimed at supporting investment in the olives, mainly attributable to the Olive Regional Plan and to the degree "olive" in the Monofund Operation Program.

The expansion, which led to an increase in regional oil assets of 20% in terms of number of plants and 6% in terms of area (the mismatch between the two increases is explained by the greater density of new plantings), has been accompanied by evolutionary processes that have affected both the introduction of technological innovations on the individual farming operations and in particular the collection, and the research and setup of new "cultural models". These were made from operations for the conversion of traditional plants and especially as new facilities, built in areas previously devoted to other crops.

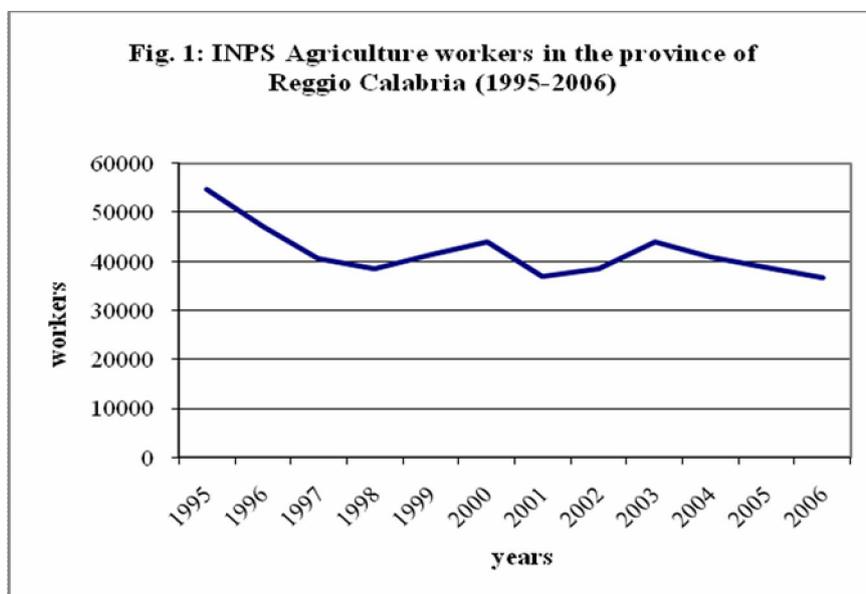
4. Agricultural employment and the Local Labor Systems (SLL) in the province of Reggio Calabria

4.1 Employment in agriculture according to INPS data

The data provided by INPS section of Reggio Calabria allowed analysis of the employment conditions for municipality from 1995 to 2006. This information concerns reports of agricultural employment in the various INPS agencies in the province of Reggio Calabria. The available data have been processed to achieve a formal framework of the employed in agriculture. This analysis allowed to identify the total number of employed in the province, municipality by municipality, and the trend in employment over the decade. The results of the calculations have highlighted the continuing reduction in the number of workers in agriculture. In Italy the phenomenon of the rural abandonment in favor of urban centers has increased since the 70s and the province of Reggio follows a trend in line with national trends although with different speeds. This leads to a continuous process of depopulation and concentration of population to big cities, where there are job opportunities in other fields, particularly in the services sector. This interpretation accounts in part the results obtained, but has limitations related to social issues such as the presence of undeclared rural work, which reduces the differences of the trend in the years 1995 to 2005, but also of part-time work and family helpers who often do not result in complaints INPS.

As shown in Figure 1, according INPS data, employed agricultural show the following trend: the number of agricultural employment began to decline considerably from 1995 until 1998 and have an upward trend in the next two years.

In 2000 the agricultural employment in the province of Reggio Calabria shown to be 44,097 units for 19.1% less than in 1995. In subsequent years the number of work units decreases again to reach 32.8% in 2006 compared to the data registered in 1995.



4.2 Employment in agriculture according to ISTAT data

The structure of employment in agriculture in the province of Reggio Calabria was analyzed through the ISTAT census data (population and agriculture census). Tab.2 shows the relative size of farms according to four age groups: 15-19 years, 20-29 years, 30-54 years and more than 55 years.

Table 2 - Percent of agricultural employment by age group in the provinces of Calabria – 2001 Census

PROVINCES	Age group from age of 15				Total
	15-19	20-29	30-54	55+	
Cosenza	0,9	12,1	67,9	19,2	100,0
Crotone	0,6	11,1	69,2	19,0	100,0
Catanzaro	0,7	11,4	72,3	15,5	100,0
Vibo Valentia	0,9	12,0	72,5	14,7	100,0
Reggio Calabria	1,4	14,4	69,5	14,6	100,0
Calabria	1,0	12,6	69,6	16,8	100,0

Source: Census, ISTAT 2001.

The province of Reggio Calabria has a number of employees in the young age groups (15-29 years), higher than other provinces (15.8%). In the class of intermediate age (30-54 years) is concentrated more jobs (69.5%), while employment traps 14.6% over 55 years.

Over the years the female component has acquired even in Calabria a weight increase. Women have gradually assumed an increasingly significant part of the

farm, and according to data from the ISTAT census of the population they are the 33.8% of employed in agriculture in the province of Reggio Calabria and 20,1% of employed women in the complex.

Even ISTAT data collected since the last general census of agriculture allow drawing a certainly interesting picture of the primary sector, because it's possible to focus on the developmental processes and to make some assumptions about future trends. The census data also give the amount of paid work in agriculture, and they shown, beyond the number of employees, the work days done by various groups that have worked. There are two main categories: the family labor - divided into tenant, spouse, family and other relatives - and the non-family labor, divided into fixed-term labor and labor for an indefinite period, whether managers and workers and similar employees.

The farms of the province of Reggio Calabria are characterized by a predominantly family-run, from a legal point of view and about the commitment to work in the management of production processes. In fact the picture of the labor force is still characterized by clearly dominant role of family labor compared to labor outside the family: in 2000, in fact, over 70% of the total number of days worked on detected farms is provided by family labor and only the remainder is made up of non-family workers.

For the surveyed workers that they had paid agricultural work days on the farms in 43% of cases, these are conductors, 23% married, 30% of cases of other family members of the conductor and finally, 4% of relatives of the same.

More than half of the working days (60%) is held by the same company conductor, while her husband carries 20% of days of work, other family members and relatives of the conductor covering the remaining 19%. Regarding the non-family labor, workers and similar cover about 88% of working days, the remaining 12% are managers and employees. These revealed a number of non-family personnel amounted to 31,690 units, representing approximately 21% of those employed on the farm, 90% are workers and 10% assimilated by managers and employees. Only 1% of those is employed under a contract of indefinite duration. In detail, 97% of the daily work is done by fixed-term employees, this is obviously due to the small size of corporate farms in the province.

Despite the proportion of family labor is very high, there was a decline in days worked by family members and relatives of the conductor from the previous census of agriculture. This confirms that is an ongoing evolutionary process that, first, shows the reduction in the number of those who choose to work within the family farm as a fallback to the absence of alternative employment, while that is linked to deep changes to family structures, increasingly characterized by a low number of children in the past and, consequently, reduced potential for collaboration within the household.

5. The Local Labor Systems (SLL)

Rural areas are facing today in a new form than in the past and they become territorial systems in which economic activities are increasingly integrated with each other and where the role of agriculture assumes different characters depending on the different tasks it has to play: environmental sustainability, provision of services to the community and with the capacity enhancement of human capital (environmental and landscape services, tourist, recreational, educational and cultural), development of human resources and social capital in the area, marketing of quality food products, etc.

In recent years, the literature has paid increasing attention to the role played by the territory as a key to understanding the different paths of development. The territory becomes a "unit of investigation and classification of economic and social facts, since the economic phenomena show obvious interdisciplinary (geographical, socio-economic, market, etc..) able to link business, manufacturing sectors and population, "because it is within the various communities are formed through the integration of production and consumption and the fulfillment of their needs". The territory is thus a social construction of multifunctional character as it is an association of residential settlements of different productive locations and is configured in "local systems" "*with different degrees of socio-economic development*" (Nice 1987).

The recognition of the local system as "socio-economic based territorial units" allows its use as a source of explanation of the structure and change of society and economy. Based on the considerations made so far, we have chosen to adopt the SLL as the unit of inquiry, calculated by ISTAT on the basis of data of the general population census of 2001. The Local Labor Systems (SLL) is defined as a portion of territory consisting of several municipalities adjacent to each other, geographically and statistically comparable, representing the places of everyday life of the population that lives there and works, built since the calculation of matrix commuters who takes into account the daily movement for work purposes.

The list of SLL is available by ISTAT and calculated on the basis of data of the census of 2001. The indicators relating to employment areas are calculated on the basis of aggregation of ISTAT municipal data.

As shown in table 3 in Calabria 12 SLL, 77% of the municipalities involved in the employment areas are systems with no specialization.

Table 3 – The Local Labor Systems (SLL) in the province of Reggio Calabria

Database 2001 (Census)									
Local Labor Systems (SLL) Name	Group	N. of municipality 2001	Surface 2001 (sq.km.)	Resident population 2001	Class size	N. of families in the SLL	N. of Housing in the SLL	N. employees of local units in the SLL	N. local units in the SLL
Bianco	A01	6	157,4	10.476	2	3.701	6.372	1.127	523
Bova Marina	A01	7	259,8	17.883	2	6.783	11.707	2.233	1.049
Gioia Tauro	Ba04	9	269,4	72.756	3	24.789	34.045	13.823	4.177
Gioiosa Ionica	A01	3	57,6	8.250	1	2.852	4.325	1.176	536
Locri	A01	16	524,9	66.264	3	23.030	33.410	12.088	3.640
Marina di Gioiosa I.	A01	3	134,4	13.440	2	4.852	9.224	1.693	772
Melito di Porto Salvo	A01	6	276,5	24.238	2	8.813	14.249	3.704	1.170
Oppido Mamertina	A01	6	183,2	14.590	2	5.181	7.188	1.783	719
Polistena	A01	8	179,6	43.403	2	15.171	21.230	6.704	2.215
Reggio Calabria	BB03	13	488,9	229.499	4	80.613	108.289	55.567	13.147
Roccella Ionica	A01	5	200,9	19.003	2	7.277	13.622	2.590	1.030
Rosarno	A01	6	181,4	26.313	2	9.126	12.041	2.929	1.140
Sant'Eufemia d'Aspr.	A01	3	69,4	7.020	1	2.424	3.957	819	376
Stilo	A01	5	152,1	9.373	1	3.451	5.917	1.127	529
Total		96	3.135,5	562.508		198.063	285.576	107.363	31.023

Group: A01=Systems without specialization; BB03=Agricultural vocation systems; BA04 = predominantly port urban area. Class size: 1= to 10.000; 2=10.001-50.000; 3=50.001-100.000; 4=100.001-500.000

6. Olive family farms in the province of Reggio Calabria: sample survey, first results

In the territory under investigation it was found 19 olive farms in 4 municipalities, representative of the reality of the olive-growing province. They intercept 161.5 hectares: 67.6% of those are organic farms and 32.4% are conventional farms. The plants are considered a medium-high intensity level for land, operating and technology. The choice was also made according to the quantity and reliability of data collection and the professionalism and availability of the operator interviewed.

The analysis of the uses of work, measured in hours per hectare per year is reported in Table 4. Average employment is around 170 hours per hectare. With reference to individual farming operations, they show similar levels of activity between the two cropping systems. Cultivation operations that absorb the larger use of labor are the harvest, whatever the mode (mechanical, manual), and pruning. Pruning affects less than a year is usually carried out on 30-40% of plants of the company. Pruning affects less than a year as is usually carried out on 30-40% of the plants of the company.

Table 4 - Application of labor per unit of average size (dd/year) and unit (hour/kg of oil) in conventional and organic plants collected in the province of Reggio Calabria in the year 2008-09.

Cultivation operations Total (workdays)	Application of labor per unit of area and type of plant (dd/year)		Application of labor per unit of product (hours/kg of oil) and type of plant	
	Conventional	Organic	Conventional	Organic
Pruning	1,8	1,5	1,53	1,53
Soil Preparation	0,8	0,7	0,65	0,77
Fertilization and irrigation	1,2	0,6	0,97	0,61
Pest	1,0	0,4	0,83	0,46
Harvest	22,8	23,4	18,61	24,20
Total	27,6	26,7	22,60	27,58

The analysis for the uses of work for quantity of product (hours / kg of oil produced) shows, compared to individual farming operations, a minor difference in the levels of activities between organic and conventional method. It is evident that to produce 100 kg of olive oil there is the need for 12 hours for organic and 14 hours for the conventional. Family labor accounts for about 70% of the company's needs.

7. Conclusions

The survey clearly demonstrates the difficulties of the provincial agricultural sector, mainly related to natural and structural handicaps of the area. The determination of the consistency of agricultural work and how this work is used in farms (from quantitative and qualitative perspective) is not easy and collides with a series of peculiar difficulties due to the quality of available information, derived from multiple sources of same data and from the presence of very peculiar and difficult to quantify forms of work, such as the spread of entrepreneurship as part-time, the work of family workers, and the very high incidence of seasonal work. Due to these factors it's necessary a great caution in interpreting the results. In fact, the INPS data comes from complaints which are made by employers for access to social security benefits and welfare and from the findings which are made by the same institute which therefore underestimate the farm work and do not include undocumented workers. On the other hand, the discipline of management and pension administration of agricultural workers is structured to allow broad access for even partial coverage of risks. This easiness of access to social security in agriculture has therefore led to expansion in fictitious labor offer. This offer of additional work is

represented by the labor force which in many ways falls outside the agricultural sector and that is available for occasional use in agriculture and for short periods². The initial results of the survey reveal a significant direct presence in the area of organic farming which shows an indicative data in relation to the net return per unit of family labor that is significantly higher in organic farms than in conventional agriculture, underscoring that this new form of agriculture offers significant improvements to the business income, in addition to being a more environmentally friendly method.

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²These are workers with poor stability extra-fields jobs and/or unsecured pension terms and placed into categories that are homogeneous in terms of low socio-economic characteristics (age, gender, employment status, amount of perceived income, etc.). In other cases, this labor force is activated very little and only in order to achieve even a minimum social security benefits (women, students, young people looking for an extra-secure employment in business, etc.).

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