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# TABLE OF CONTENTS / INDICE ---

R. Rigillo, A. Peli, A. Antinelli	
<b>The fisherman future and the opinion of the stakeholder</b>	7
A. Pontrandolfi, F. Capitanio, G. Enjolras, B. Goodwin	
<b>Analysis of the factors used by farmers to manage risk. A case study on Italian farms</b>	23
F. Carillo	
<b>Young farmer and farm performance</b>	43
M. De Rosa, F. Adinolfi, F. Capitanio, F. Paci, D. Pantini	
<b>The role of culinary programs in the emergency of “distinct” consumers</b>	55

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# THE FISHERMAN FUTURE AND THE OPINION OF THE STAKEHOLDER

JEL classification: ??????

**R. Rigillo<sup>1</sup>, A. Peli<sup>2</sup>, A. Antinelli**

## Introduction

In the next programming period, to maximize the effectiveness of European Structural and Investment funds, (the ESI funds, including the financial instruments for cohesion policy, rural development and fisheries), the Commission has proposed the common provisions regulation (COM (2011) 615). This regulation sets out a common set of basic rules for all ESI funds. This includes provisions concerning conditionality, performance review, arrangements for monitoring, reporting, evaluation and eligibility rules.

The EMFF provisions for the management and control systems and for financial management are aligned with those of the cohesion policy financial tools (the European Regional Development Fund, the European Social Fund and the Cohesion Fund).

It is believed that the institutional intervention, national and Community, is crucial to the economic and social competitiveness of the fisheries sector and aquaculture; while representing the legislative intervention characterizing a constraint for the same competitiveness (for known reasons in support of environmental sustainability of fish production), there is no doubt that without government intervention the fishing industry as a whole would be exposed to the dynamics of filthiness international markets, and the low profitability / efficiency / organization that makes less and less profitable activity of industry insiders.

Without this conviction, to make speculations on the possible future of the fishing industry as a whole, and its employees, it was considered useful to resort to the views of some stakeholders of the fisheries and aquaculture sector in some Italian regions (Campania, Puglia, Lazio, Emilia Romagna and Veneto). The goal was to understand how “the sector” perceive and feel improved public intervention (based on the past programming period, 2007-2013), and what the needs not captured by the current programming.

Before considering the merits of the answers, it seems useful to also fix some points on the current competitive situation of fisheries and aquaculture in Italy, by resorting to socio-economic indicators.

The indicators are particularly useful to provide an accurate picture of the fisheries sector from a biological point of view, economic and social. In addition, an evaluation of the state of a system over time can be obtained by comparing the indicators with appropriate reference points. As reported by Caddy and Mahon (1995), these reference values should be associated with a critical condition or with an optimal condition; in the first case is identified a limit that you need to avoid, limit reference points (LRP), while in the second a target to be reached for the system,

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target reference points (TRP). Despite this, LRP and TRP are not easily identifiable for many indicators and / or, in many cases, the necessary data for their estimation are not available.

An attempt to define a general list of indicators and reference points has been pursued by the FAO Technical Guidelines for Responsible Fisheries (FAO, 1999).

## **The role of indicators to build new policy**

Between the reference points pro- places, only in a minority of cases it was possible to define the TRP, in agreement with the general concepts in the literature on sustainability in the fisheries sector, as the Maximum Sustainable Yield and Maximum Economic Yield; while in most cases, have been defined with reference to historical levels of the same indicators. However, the use of historical levels of the indicator does not necessarily represent a choice of second order, as these are particularly suited to highlight the presence of trends and to assess the status of the system with reference to the period analyzed.

The results obtained by the analysis of indicators and reference points can be represented in a clear and easily understood by the so-called method of traffic light. This method was introduced by Caddy (1998) to establish a management system based on the precautionary approach to those fisheries are characterized by a lack of available data. This method is able to provide an instant snapshot of the state of the sector, assigning a color to each value of the indicator along its series.

The use of indicators to analyze and evaluate the state of fisheries are being used by more and many examples can be found in the literature. Over the past thirty years the development of a standardized and continuous monitoring of the sector put at the disposal of scientific research for a greater amount of data. This has encouraged an increasing use and methodologically more appropriate indicators. From a socio-economic, an estimate of annual indicators on the fisheries is produced by Italian Irepa continuously since 2001 and published in "Economic Observatory on Productive structures of" Sea Fishing in Italy.

The indicators have always been used in the fisheries sector as in other sectors, as they represent one of the basic tools for the analysis of a phenomenon. However, a more adherent to the definition given in the FAO on the economic aspects of fisheries in Italy, must be traced back to the early nineties with the publication by dell'Irepa Observatory on Economic Structures of the Productive Fishing Marittima in Italy. In fact, right from the outputs of such publication, have been reported indicators of physical productivity, as daily catches and average catch per boat, and indicators of economic productivity, such as revenue and average revenue per day per vessel. These indicators, while not being compared with appropriate reference values, however, were allowed to represent and identify a trend in the sector from a production point of view and economically. Moreover, the very structure of the Observatory Irepa has allowed an analysis of these indicators, and a comparison of both regionally and fleet segment.

Since 2001 productivity indicators published dall'Irepa were integrated with a set of new indicators intended to permit an evaluation of the state of the industry in terms of sustainability. To give a measure of sustainability according to the traditional three pillars of the multidisciplinary approach of the research in the fisheries sector - ecological, economic and social - were used, respectively, the daily catch per unit of gross tonnage used, the gross salable daily per unit of gross tonnage and labour costs per employee in the industry. Even for the sustainability indicators, the analysis is conducted for each coastal region and fleet segment so that it fully covers the marine



fisheries in Italy. Additionally, each indicator is compared with a reference point generally calculated as the average of the indicator in the last five years.

The progress made in the field of data collection following the introduction of specific programs by the European Commission, such as the Data Collection Regulation from 2002 to 2008 and the Data Collection Framework from 2009 onwards, helped to improve the data base available for the production of indicators and to improve the quality of information. It was then possible to develop and use socio-economic indicators in a more comprehensive and detailed analysis of specific case studies.

Both in the work of Accadia and Spanish in 2006 on demersal fisheries in the Upper and Middle Adriatic (FAO Geographical Sub Area 17 - GSA 17) and in that of Ceriola et al. 2008 on demersal fisheries in the Southern Adriatic (GSA 18) was used the same methodology to identify, measure and assess the socio-economic indicators. In the FAO-GFCM, the same methodological approach was also extended to the pelagic fisheries in GSA 17 and 18 with the aim to compare the results for different areas and types of fishing.

The methodology used in the case studies introduced is based on using a set of 24 socio-economic indicators. These are divided into two types: indicators to assess the state of the industry and indicators to measure the level of economic and social sustainability. For the first group of indicators, were used historical levels as reference values, while for the second group it was possible to identify specific LRP. The results were reported by the typical representation of the method of the traffic light.

As for the assessment of economic performance, we used the traditional indicators based on return on investment and some indicators to measure the share of revenues direct to inputs (Value Added / Revenues, EBITDA / Revenue, ROS (Return on Sale), ROI (Return on Investment) (% Revenues / Invested Capital (% Net income per boat (€ 000)). Also for the evaluation of productivity, has been used a multiplicity of indicators. These can be divided into two groups: indicators of physical productivity, expressed in terms of quantity produced (catch per vessel (ton), catches for TSL (ton) Daily catches (tons) CPUE (kg)), and productivity indicators economic, expressed in terms of revenues (revenues per boat (€ 000), Revenue by TSL (€ 000), daily revenues (€ 000), RPUE (€)). The last four economic indicators (average price landed (€ / kg), fuel costs for boat (€ 000), costs of fuel daily (€ 000), maintenance costs for boat (€ 000)), relating to the main variables market, are intended to measure the evolution of prices and cost items most relevant, maintenance costs and fuel costs.

From a social point of view, the studies cited have provided for the analysis of the four indicators, two on labor productivity (catch per employee (ton), revenue per employee (€)), one on the number of people employed in the sector (number busy) and one on the average wage per employee (Average salary (€ 000)).

Regarding the assessment of the levels of sustainability of the sector, have been defined an economic indicator and one social. The definition of these indicators was obtained considering a sustainable industry in which it is guaranteed in the long term availability of all resources used. Specifically of fishing, this means to safeguard not only the availability of fish stocks, but also those economic and human.

From an economic point of view, the traditional indicator used to measure the profitability of an economic sector, namely the rate of return on investment (ROI), was compared with the average rate of the multi-year treasury bonds (BTP). The indicator of economic sustainability (ISE) is the result then the difference between the two rates of return. When the value of the ROI is less than or close to the rate of BTP (the value of ISE is negative or close to zero), the investment in

treasury bills becomes better than investing in the fishery and the state of the industry does not can no longer be considered as economically sustainable.

From a social point of view, the approach is very different. In this context, the role of trade unions and legislation on safety at work take on a special significance. In particular, the minimum wage, defined by union agreements category was considered the minimum level at which an economic sector can be considered socially sustainable. So, the difference between the average wage per employee and the minimum wage defined by Italian law (the National Collective Labour - National Labour Contract), is considered as an indicator of social sustainability (ISS). Then, a value close to zero for the ISS will highlight a situation of unsustainable from a social perspective.

Among the indicators mentioned above, some have also been used in the Management Plans drawn up by the Italian authorities in implementing Article 19 of the Regulation of the Mediterranean. In this case, the socio-economic indicators were selected based on their relevance to the specific objectives of the plans. The gross profit for the boat and the value added per employee have been considered the most appropriate to "indicate" a possible improvement in the profitability of fishing activities; while the number of employed and the average cost per employee have been considered the most appropriate to "indicate" any development of job opportunities in the sector.

In order to effectively interpret the information obtained by the indicators, these are generally compared with appropriate reference values. Accadia and Spanish (2006) analyzed the time series of indicators by the method of traffic light, which assigns a color to each value. When you adopt the standard approach of this method based on the use of three colors - where the green, yellow and red, are associated respectively with the conditions "positive", "intermediate" and "negative" - it is necessary to define two reference values.

Of the two values, one is associated with a situation of difficulty and the other to an optimal situation (or sub-optimal). In the first case, it is an LRP, while in the second case it is a TRP. For sustainability indicators described above, ISE and ISS, the LRP were associated respectively to the average rate of the multi-year treasury bonds and the minimum wage provisions of the National Collective Bargaining Agreement for the fishing industry. Since ISE and ISS are calculated by subtracting the LRP from the value of the relative indicators, the resulting reference values, used to separate the red area within the representation by the yellow traffic light, are set equal to zero. The second reference value, used to define the boundary between the areas of yellow and green, was computed as the average of the time series of the indicator.

A different approach has been used in the definition of the reference values associated with the economic and social indicators, first introduced. In this case, LRP and TRP are not easily identifiable because their estimates require the use of special tools and / or data that are not always available. Of the reference points of simple construction and immediately understandable can still be obtained by means of historical levels of indicators. In the articles mentioned above, the reference values for these indicators have been associated with the percentiles of the respective time series according to the following schedule:

> 66th percentile, for indicators of productivity and economic performance - "positive", green color; for indicators of cost, "negative", red color.

66° - 33° percentile, intermediate, yellow.

<33 th percentile, for indicators of productivity and economic performance - "negative", red; for indicators of cost, "positive", the color green.

For detailed methodological results, interesting in the method and to upgrade to time level, please refer to the study cited; enough to anticipate that the situation of the indicators has increas-

ingly worse since the late 90', both in terms of socio-economic and environmental sustainability.

More specifically, if one focuses on economic sustainability, the indicators most commonly used are the ratio between the gross salable production and effort (PLV / effort) aimed at analyzing the time course of aggregates and economic phenomena; the index of production (catches, prices and revenues) aimed at analyzing the fluctuations of economic phenomena through the use of the respective time series; the relationship between revenues and current point balance of revenues (revenues / BER) aimed to analyze the economic situation in the short term.

The three indicators chosen prove suitable to represent the national reality, as they are measurable and are scientifically sound.

Measurability comes from systematic data collection conducted in Italy. The monitoring was conducted with statistical regularity and makes available historical data suitable to assess the viability of the national fishing fleet.

Scientific robustness is characterized by the existence of the cause-effect relationship between the indicators. These reports have been demonstrated in scientific contexts international and ease of interpretation of the indicators has widely distributed.

Subsequent processing based on methodologies drilling down the national database, offer the opportunity to deepen the analysis at the technical level and geographic. In this context, the analysis of economic systems for fisheries and for regions is the tool to complete the assessment of the economic state of the Italian fishing.

For the first indicator, Plv / effort, in the period 2004-2010 there was a general stability of the economic productivity unitary. In the presence of the accentuated reduction of effort, the value of the indicator is obviously influenced by a simultaneous decline in catches. In this context, the stability of the economic productivity of recent years depends on the returns unit which benefited primarily from the positive trend in the prices of products. In the medium term, therefore, the economic sustainability of the national fishing fleet was favoured by the price. However, it is considered that the mechanism of price formation is external to the production process and operators have few tools to influence the prices of fish products. This is of relevance as, a possible slowdown in prices, which could undermine the future economic viability of the sector.

The index of production of the fisheries sector (built with base year 2004), for comparing the fluctuations of economic phenomena and is a useful tool to assess the prospects of development of the sector. In 2012, the index of the catch has reached a level of 75, compared to an index of revenue that has stopped to share 79.

The performance of the two indices confirm that the trend in the prices of fish products has helped to ensure economic sustainability in the medium term. In the period under analysis, the fluctuation in the price index has settled on a value of 103. The listing in 2012 represents the minimum value of the period, showing a downward trend. This situation is caused by a decline in consumption and demand orientation towards products less valuable statement. According with Ismea (2014), the price trend for each product category indicates a significant setback in the prices of shellfish and fish products more valuable. Concurrently, there was a substantial stability for species from the lower unit value.

Ultimately, the current economic momentum is characterized by a strong recession. The time series of the average returns of the indicators of catches and revenues are, in fact, a negative trend. In this context, the inability to control the prices of first sale reflects negatively on short-term profitability of the sector: the cash flow tends progressively to shrink due to the contraction of current income and the simultaneous increase in variable costs, including them being the increase in oil prices.

The trend of the previous two indicators showed the risk of a progressive loss of economic efficiency of the fleet. In this context it is appropriate to assess its effects on the economic sustainability of the short term. In this regard the use of the third indicator allows the analysis of the short term, which provides important information on the ability of the business in the fisheries sector to cover operating costs with revenues.

Specifically, this ability can be evaluated according to a liquidity indicator, the ratio of current revenues and revenues of Break Even Revenue, representing the level of revenues that total revenues are equal to the total costs ( $RT = CT$ ).

In the short term some production segments of the Italian fleet operating in a regime of low profitability. The value close to break-even point, equal to 1, indicates a situation of borderline. The economic sustainability of the fisheries sector is affected by rising production costs and declines in physical productivity. In 2010 the fishing equipment that has an indicator next to the unit are the train, the steering wheel and the seine.

Such production segments, therefore, operate at the limits of viability, as the short-term cash flow may be insufficient to cover fixed costs. Ultimately, the current situation of overall weakness of the fisheries sector is also confirmed in the analysis of the short term and it is the result of a dynamic production decreasing associated with a substantial stability in the level of producer prices. In this context, in the presence of concomitant increase in variable costs, profits continue to decline and operators find it increasingly difficult to ensure the economic sustainability of the fishery.

This is the objective situation of the sector; a sector as a whole in trouble, in need of public support in order to survive, but also in need of radical changes, cultural and organizational.

## **The stakeholders opinion**

What is according to the stakeholders of the fisheries and aquaculture sector in Italy the impact and value of the PCP? The interviewees, almost unanimously express a decidedly negative judgment on the relevance of the program, not only in terms of ability to meet the needs of business but also in relation to its effectiveness for the sustainable development of the entire national fisheries sector. The views are much softer than its usefulness in enhancing aquaculture. According to representatives of the category of Emilia Romagna, the PO EFF, to date, has not been able to meet the needs of the sector, particularly in regions which have been allocated a small amount of resources. Nevertheless, in Emilia Romagna, but not only, thanks to the ongoing dialogue between the Administration and the social partners in the stages preceding enactment of the calls, the few available funds have been used to the fullest. On the other hand, the associations give the program a very important role in fostering investment. The Italian fishing industry consists largely of small businesses that typically have great difficulty in accessing credit and therefore could not make investments in the absence of such financial support.

The same are convinced that the measures of the OP EFF not produce any benefit to the fisheries sector and do nothing but distribute contributions to parties that have nothing to do with the production sector. Furthermore, they believe that the fishing companies have Italian demands that the EFF does not share, as demonstrated by the incentives for the permanent and the lack of real support to fishing companies, which are not at all favoured virtuous organizations and the fisheries sector in Italy is destined to die.

Even the representatives of the category of the Campania region believe that the results of the

program did not meet the expectations and the great opportunities that the EFF has offered have not been fully exploited. They also claim that the Calabrian fishing was even damaged by the Program on leaked from the field of a large number of fishermen and that it had no major benefits for employees in the sector, despite the huge commitment that associations category have put in this direction. A note expressed in his favour, is related to the fact that in the Campania PO EFF has nonetheless contributed to the creation of new job.

Another problem identified by all respondents, is the lack of proper planning of investments, which were often made irrationally, sometimes only in order to take advantage of available resources. They also believe that, as in most cases the contributions were disbursed in favour of third parties, members of the supply chain but not closely related to the production, the producers do not have benefited. Furthermore, it was verified that important investments, such as the construction of mariculture, were interrupted during construction and this resulted in huge waste of resources.

For the region, stressing however that there are certain cases where the actions taken have fully embraced the principles of the EFF. For example, the Fund has financed the start-up of cooperatives, with a strong youth component, having invested absolutely innovative in the panorama of the fishing bell, as the construction of facilities for the processing of hand craftsmanship by the manufacturer.

No less severe was the judgment of Puglia, that the program, and thus its results were tainted by an underlying problem, which is to have attached importance to the downsizing of the fleet exceeds that given to other objectives OP EFF and have therefore assigned to Measure 1.1 a disproportionate share of resources. It is believed that the restructuring of the fleet is extremely important in Puglia, but that should be done in a critical way, that is, eliminating the fleet boats less efficient. In other words, the PO FEP was "bad set" from the beginning and, therefore, is not able to improve the condition of the field, nor in terms of employment or income.

Three other issues are identified for Apulia, as due to the limited effectiveness of the program. First, its goals are contradictory: on the one hand there are measures in favour of less pressure on stocks (incentives for the permanent or temporary, incentives for diversification of activities, etc.), On the other hand, measures that may even result in increased damage to fish stocks (e.g. incentives for modernization). Also, the rules of the program have not been defined and presented clearly. In some cases (e.g. For measure 1.3) they have even been changed after the submission of applications for funding from the operators. Finally, the decision-makers do not have the full knowledge of the problems of the sector, so sometimes make decisions that are not in line with the goals you have set. This problem is compounded by the lack of communication between the organizations and the core assessment.

Still, it is agreed that the PO EFF has been up to now little relevant in meeting the needs of the fisheries sector, but that this was caused mainly by delays in the calls and the length of procedures for the investigation and assessment of applications, critical that have dramatically reduced the attractiveness of the measures. In addition, the delays in terms of disbursement of resources have reduced the importance of the funding or investment decisions.

For the Lazio region, is deemed the PO EFF can only partially meet the needs of the industry and highlight two main weaknesses: the lack of experience of the Region in the management procedures and the slow implementation of the measures, due to the continuous changes of staff suffered from 'Fishing Regional Office. Moreover, it is believed that the OP EFF has not been relevant in investment decisions of firms that have often opted for alternative sources of funding.

Campania is in line with that of other respondents that the PO EFF has been, to date, very

incisive in offering answers to companies of fishing and aquaculture Italian. Associations bells, however, attribute much of the failure to the deep economic crisis faced by the industry and regulatory uncertainties relating to procedures for carrying out the sampling. Resizing the tuna sector (n. 49 boats of 2009 was passed to n. 12 boats authorized in 2011), the lack of exemptions for fishing for whitebait and lipstick, the tightening of controls (penalty points), dear diesel, etc. certainly not encouraged investments. In Veneto, the overall impact of the EFF OP Fisheries is strongly negative. The feeling, in this case, is that the measures of the program have not been built on the basis of the real needs of the world's fisheries and the implementation procedures of the few measures that could have a positive impact on the industry have been made so complex as to make such measures almost unworkable. In particular, the three measures of which the fishermen could benefit, namely the 1.1, the 1.2 and 1.3, the first two were not able to respond effectively to the needs of the sector, the third was blocked. The associations also point out that the Measure 1.3 had used a large number of fishing companies that were exposed economically convinced that they would then receive the contribution.

Consequently, the blocking of payments has created hardships really huge. In contrast, with regard to the specific needs of aquaculture enterprises, the EFF has detected a positive tool, since it has allowed the construction of new facilities and the renovation of existing ones.

### **Stakeholders suggestion**

Stakeholders heard have provided numerous indications to improve the effectiveness of measures implemented under the OP EFF. Some of these seem particularly relevant: ensure greater integration of the measures in favor of the fisheries sector with those provided under other Community programs, greater involvement of stakeholders in the creation and implementation of programs, review the entire architecture of the procedural PO EFF.

In Puglia, the relevance of the interventions of the OP EFF would increase if there was a greater integration between the measures for the fisheries and aquaculture and those provided under other Community programs (ERDF, ESF, EAFRD). Is, in fact, highlighted the lack of Puglia in all initiatives in favor of such integration.

Moreover, it is believed that the problems that have caused delays in the measures of the OP EFF in Italy, have not been completely overcome, and that is therefore essential in a greater organizational effort on the part of all the institutional, economic and social representative national fishing industry. Still, it is believed that the adoption of a procedural architecture which includes the involvement of the intermediate bodies has further complicated the situation. The regions are not yet fully equipped on the cultural and structural to effectively manage the implementation procedures of the OP EFF.

Last tip, is to keep the calls are always open until exhaustion of the resources planned for the whole period 2007-2013 in order to simplify and speed up the procedures.

All believe that, in order to improve the effectiveness of interventions, it would be extremely important to achieve greater involvement of stakeholders and to gear measures to the specific local situations.

There is broad consensus on the opportunity to increase the amount of resources available and the percentage of contribution and make it easy access to the measures. This is especially true in the case of aid for structural investments that are very relevant to the vitality and the future of businesses but typically are made only if the entrepreneur receives a contribution.

For the region, it is recalled that the simplified procedure provided for in the convergence regions under the FIFG had allowed to obtain good results in terms of the operation of the procedures for implementation of the calls. Instead, with the current structure of programming, which includes the involvement of multi-level institutional, procedural problems are detected, related to the management of cash flow and the respect of the Stability Pact of the different institutional levels, which slow down the concrete implementation interventions. Further problems have arisen as a result of the choice of the regions Mipaaf provide stringent guidelines on the implementation procedures of the interventions (schemes call, selection criteria, eligibility criteria, expenditure ceilings). In this situation, the Intermediate Body is found to have a limited capacity to take decisions in the management of the interventions.

In addition, this programming structure, the risk is related to automatic release of economic resources EFF available for our country. To overcome these problems, it would be appropriate to implement the program fully centralized or fully regionalize the management, through the implementation of various regional operational programs.

In Lazio, it is believed that the EFF should be directed to qualifying businesses fishery, supporting more innovation also in order to allow operators to adapt to the new rules of the Common Fisheries Policy (especially Reg. 1224 / 2009 and Reg. 404/2011 on Community control system for ensuring compliance with the rules of the Common Fisheries Policy). In other words, the fishing industry should take a leap of quality, enhancing and strengthening the role of companies within the industry, in order to improve their profitability. Therefore, the EFF should include measures that promote a greater culture of enterprise among business operators.

In Veneto, it is considered that it would be appropriate to allocate resources differently under the program. In particular, the funds should be allocated primarily to measures most significant (1.1, 1.2, 1.3, 1.4, 2.1.1, 2.3, 3.1, 3.3). Moreover, it should be eliminated the distinction between areas in convergence and non convergence as companies fishing have exactly the same problems and the same economic difficulties both south and north of the country.

Unanimously, it would be preferable, regardless of the specific measure of the program, replace the capital contribution, with other financing solutions that will produce the best results, it is the easy access to credit. A second proposal, much more ambitious, is to create a specific program for countries operating in the Mediterranean and arising from an in-depth knowledge of the real problems of the sector.

Despite many associations interviewed consider that the management of the entire program by the Intermediate Bodies would improve its efficiency, the issue is quite controversial.

Another point on which there is consensus, is that it would be preferable that all measures of the program were implemented at the regional level but managed centrally (this should be reflected for example in the uniqueness of the calls), because it would thus ensured the simplification of procedures. The implementation at the regional level would be preferable because associations communicate more easily with the region and with the Central Administration.

For the Veneto, it is believed that both the D.G. fishing Intermediate Bodies do your best to manage the PO EFF. Unfortunately, however, the involvement of too many contemporary organisms generates major complications. Nevertheless, in a "federalist" and decentralization, no one can see alternatives.

It is believed, however, that one cannot generalize, since administrative efficiency varies greatly from region to region. In the experience of Veneto, the regional body is confronted with the social partners and therefore knows the needs of the territory, which cannot however be known to the Central Administration.

In other words, if the region is able to manage resources efficiently, regionalization is undoubtedly the best solution. It is suggested, therefore, the total regionalization and coordination by the Ministry, also in view of the fact that the existence of a “connection” between the different regions in the current management model has also delayed the implementation of the program by of intermediate bodies more efficient. Another idea would be to introduce a policy of rewards in the allocation of funds, based on the speed and efficiency showed by Regional administrations. Finally, the associations consider that it would be very important to raise the level of expertise at the regional level.

According to the Lazio, the management at the regional level is the more functional but should definitely be improved if we are to overcome the problems that have emerged so far.

Not identify, however, critical specifications for the aquaculture sector, nor on access to finance EFF, either as regards the effectiveness of the measures it intended.

On the contrary, in the opinion of Campania, Sicily aquaculture production businesses are going through a very difficult time which affected the effectiveness of the measures of the OP EFF intended for them.

For the construction of a new plant for mariculture, is, in fact, must have a specific grant and funding procedure Funds EFF provides that the maricoltura is already in possession of such authorization when submitting the application for funding. After the submission of the request for assistance by many companies, the law relating to the concessions has been changed (fees paid by businesses have increased), so the documentation submitted by these companies was no longer in good standing. This has caused the suspension of numerous practices and the failure of the actions taken. In Sicily, however, the aquaculture farms are disappearing, are very few plants that can survive. This is mainly due to fate that local products are not valued, for which the sector is strongly affected by the competition of products from other countries, such as Greece and Turkey.

For Lazio, aquaculture production businesses have great difficulties in accessing finance due to the extreme complexity of procedures. Additional critical issues affecting the timing of investigation and evaluation for admission to the financing.

More specifically with respect to the employment impact of public intervention, all, except in Puglia, consider the measures of the OP EFF completely unable to compensate for the loss of jobs caused by Measure 1.1.

According to Puglia, the measures of the OP EFF have so far had a very limited impact the appearance of employment. Even measures of economic diversification, aimed at creating alternative opportunities for income and employment, have had very limited effectiveness.

Moreover, has been pointed out that economic diversification in the fishing industry is viable only in the territorial areas that have a specific vocation environmental and cultural.

Very critical has been also the opinion of Campania, which considers the program guilty of the loss of many jobs. Some positive results have been obtained only in the industrial sector. They consider that the measures of the program have not been designed to allow for the diversification of activities. For example, the Measure 1.5, which provided just compensation for those leaving the activity (among other very small for the possible start of a new business) was not able to create credible alternative employment. Another example is fishing tourism: its success is necessarily conditioned by the specific nature of the area in which it is practiced, so it can not be considered a viable alternative to fishing. Measures that could really help enterprises are the 1.3, which allows the reduction of business costs, and 2.3. With specific regard to the marketing of products, and consider that you could work a lot in this regard, especially involving women.



To curb unemployment and encouraging diversification would have to focus on Axis IV. The field would have to develop in a manner consistent with the preservation of resources and in an integrated manner than other sectors, such as tourism and had to be created synergies advantageous to reduce the expulsion of workers from the sector. Negative also the judgment of Campania, where interventions appear to be unable to solve the employment problems that characterize the sector. In this regard, it highlights the fact that have been underestimated the potential of the Measure 1.5. The sum that operators receive to exit the sector (40,000 euro) is definitely not enough to support the operator in the creation of an alternative activity. It would be appropriate to increase the value of that prize, promoting parallel suitable control interventions and monitoring during the design phase, to avoid speculative actions by the beneficiaries of the measure.

Even in Lazio and consider that the EFF has so far had a minimal impact in terms of employment. The inability of the EFF to compensate for the loss of jobs resulting from the Measure 1.1 also depends on the fact that the workforce coming out of the industry can not find alternative employment in other companies in the supply chain but is forced to find employment in various fields of work. In Veneto, the associations are certain that the PO EFF has had an impact on increasing employment zero. No measure allows for projects that have this specific purpose. During the previous program, it was possible to carry out projects under the measure “collective action”.

In contrast, in the current schedule, the similar measure appears aimed almost exclusively to the realization of training projects which, although useful for maintaining employment, do not allow certain to increase it.

For Emilia, shows how the design implicit in the Community rules that govern the system is to demolish the system professional fishing, especially the great fishing. As a result, they believe that the initiatives funded by the EFF programs are not able to work on the reduction of jobs caused by the actions of zero activity in the sector.

## **Retraining opportunities**

In the last twenty years of the last century and the first decade of this century the reduction in the number of fishermen has been a further sharp acceleration, especially as a result of Community policies aimed at reducing fishing effort, pursued, the latter, by the ‘providing grants and incentives for the demolition of the vessels. It is in this sense, assisted, in just three decades, to a further halving (or most) of the number of fishermen.

If from the point of view it is not strictly quantitative, therefore, of a category from the considerable absolute weight in terms of the number of employees, its actual value, however, must be held still strategic; This, according to the specific sector which have gained more and more importance in the context of environmental policies for the protection of the sea, as well as a strong social and cultural role. It’s no mystery what is the role played by fishing communities in many coastal resorts such as, not least, do not underestimate the contribution of the same quality and the needs of the food supply.

With regard to the origin of the operators and the requirements needed to do their jobs, until about fifty years ago, the job of the fisherman and the skills necessary for its implementation is inherited almost exclusively in the context of a tradition in family transmission: be fisherman meant to belong to a community, often closed and isolated, from which they were transmitted, and thus gained from the earliest age, the knowledge and the tools needed.

Today, even though in many cases persists inheritance of this activity, in the sense that those who decide to be a fisherman, often, is still part of a family of fishermen, to carry out this job you have to be real entrepreneurs, in the sense Modern term.

Therefore, modern entrepreneur must be able to acquire and master a range of skills, both traditional and innovative.

Even fishermen who belong to the small-scale fisheries (artisanal fisheries), which surely is the sector in which the techniques and tools have undergone the transformation minor, can not operate without being informed and keep up to date.

And 'necessary, for example, to know how to use the instruments for navigation more and more advanced, as well as learn about the opportunities and limitations provided by the regulations both Community and national or the findings and evidence emerged and focused by countless research applied about environmental issues and the abundance or scarcity of resources.

Of course, while it is undeniable that technological innovations have improved the conditions of life and work of fishermen, with a growing decrease in physical fatigue, reduction in work time and navigation, greater profitability and improved safety at work, by 'other have increased both the cost of investment and production, that the knowledge necessary to do their jobs in a profitable way.

A major impact has also had activity for drawing, with obvious effects on the conservation of resources and thus the need for regulation of the activity.

This process of modernization and transformation, in which of course still some reservations and resistances, in a category that traditionally was acting alone and often in the belief of not having to answer to anyone for their actions nor take into account any conditions, has initiated and is steadily, although today many have invokes the strengthening of training processes, precisely in order to accompany and support the process of development of the sector.

In this regard it should be noted that, for the most part, the evolution of the category in this direction is due and made possible by the ability to organize themselves into companies, cooperatives and, joined by the creation and strengthening of associations and representative bodies.

In particular, the emergence and development of cooperatives and their organizations representing local, or national, in fact, make it easier to carry out many operations bureaucratic or access to credits, incentives and subsidies, which in the recent phase have supported and accompanied many evolutionary processes experienced by the sector. The organization cooperatively also favors the possibility of jointly addressing the many challenges have arisen in recent years, as well as the opportunity to be informed on the evolution of legislation and in particular the provisions relating directly to the manner of performing the activity of levy, the tools and systems permitted or prohibited in different areas or seasons.

To meet the challenges of the current economic cycle, requires an increase in terms of cultural and entrepreneurial skills of the employees, who need to acquire more and more the ability to innovate through a process of diversification of its activities. Think of the fishing companies as potential stars of new forms of catering, as well as experienced in agriculture and in the direct sale of local products, or even initiate activities of teaching, in connection with the environmental tourism and its operators or even more directly, becoming protagonists of new forms of tourism blue, as part of activities disclosures already required by law, such as fishing tourism and related tourism. These aspects, which we will see in greater detail later.

In essence, it is hoped a cultural evolution and professional and a simultaneous recognition of the social role played by the fishermen themselves, in view of the distinctive value of their business

not only in terms of production and merely quantitative, but also because of their contribution to employment, food, the environment, green tourism, culture and therefore to society as a whole.

## **Concluding remarks**

Public intervention, and therefore bodies at various levels responsible for the planning and provision of financial resources for the fishing industry as a whole, are, and will be called more strongly to take account of evolving new demands of the sector and its operators. We must, therefore, show ourselves able to understand and interpret the needs of the class, in order to combine the instances that promote the achievement, or at least the pursuit of a full sustainability in terms of not only environmental, but also social and economic.

Section 3.2 of the National Programme three years of fisheries and aquaculture, approved by the DM August 3, 2007, on page 40 provides explicitly a section dedicated to support employment in the fisheries sector, namely, "Development of employment opportunities".

Quote, "The effects of the reduction of the fleet, in implementation of Community legislation, are found in the progressive reduction in employment with considerable social repercussions. On the other hand, in most of the country and for certain categories of fishermen, the income produced by the fishing activity were lower than other business activities. Unlike other production categories, the income of the industry, are characterized by a downward trend in real terms. The extension of models of co-management and consortium grouping small fisheries, concentration and rationalization of landing sites, development aid and cooperation producer organizations (public works) to promote models of management and enhancement of the product even in the areas of marketing before, a reduction in the number of steps in the chain to guarantee the income of fishermen and a developed system of labeling in which each transfer Outgoing accept responsibility than to protect the incoming quality, medium-term objectives are to be pursued and that this program is intended for its part comply.

In addition there are aspects such as multifunctionality and the introduction of measures to encourage the integration of basic income, such as fishing tourism and related tourism, already accepted even within the EU regulations, which are to be decisively strengthened especially as concerns so far inadequate financial resources, the examples bureaucratic and administrative support to the promotion of such environmentally friendly activities.

It arises, therefore, the need to identify the criteria of innovative intervention can provide a direct and concrete support to the total employees in the sector. Furthermore, in order to encourage the development of new jobs and the creation of additional employment opportunities and to facilitate the generation change, will be given specific powers in favour of the recognized organizations for the establishment of appropriate support tools and service in favour of employees sector, their members.

Without forgetting the need to support employees in the sector that, at present, are not members and employees. For these reasons and for the development of innovations in this program, we need to focus on a method of horizontal subsidiarity aimed at increasing opportunities and tools intervention aimed for trade unions and employers".

It is evident that this so generic forecast, is inadequate to provide concrete answers to the problem of conversion and / or retraining of workers escaping from the current fish production system in Italy.

At the time of drafting the Plan, it was already clear the employment trend recessive; and was

also a clear need to address this trend, to focus on aspects still present, such as aid to cooperation and diversification of activities (e.g. tourism).

But what is left on the card as widely discussed above, is the willingness to give substance to these alternatives, the failure overview of the activities expected / desirable and the funds allocated for the EFF (have preferred measures that have little helped the employment dynamics), the lack of a clear definition of expenditure commitments and actions to be taken.

Professional retraining geared to fisheries and aquaculture are taking an increasing share important in the interest of a gradual process of restructuring and rationalization of the industry. However, despite recording one hand a decreasing employment trend due to both the reduction in fishing effort that the tendency of the younger generations to retrain in other specialties, there is the phenomenon of a chronic labour shortage. Therefore require actions stimulus for young people and for businesses in order to bring the same to the world of fishing, to be associated with measures aimed at improving the quality of life on board and the hygiene and environmental sanitation, to help overcome obstacles also cultural in nature. In this, the next Triennial Program should be in charge of supporting vocational training courses to prepare unemployed young people to occupy professionals, today lacking in the area, as well as retraining courses aimed to fishermen to acquire higher professional (engineers, captains, etc.).

All this information, alone, strongly introduce the theme of the redevelopment is it cultural, whether of identifiable features in new professionals.

How not to think about the need for professionals capable of interfacing with the markets and that they are able to organize the supply of the industry, avoiding in this way also to the small economic size of businesses. How not to think about professional profiles capable of interacting with the credit market, which represents a decisive opportunity in times of economic restructuring and conversion of enterprises. How not to think of figures capable of governing the opportunities guaranteed by the commitment to EU and national policy measures.

There is a question not too latent for additional services related more or less directly with the fishing activity: it is not difficult to imagine that, especially for women, there is a need for retraining to respond to this “new” question (fishing tourism, catering, etc.).

In this sense, although at national level are established for some time, these activities have not yet taken adequate importance. Therefore we must encourage the integration of interventions aimed both income of fishing companies is to lighten the fishing effort, in a few months a year, distracting operators from fishing to tourism activity. The adaptation of fishing effort and the conversion of labour and capital is the best guarantee for the local economy.

## REFERENCES

- Andersen P. e Sutinen J.G., 1984, “Stochastic Bioeconomics: A Review of Basic Methods and Results”, *Marine Resource Economics* 1 (2): 117-136.
- Baranzi-Yeroulanos L. (2010) - Aquaculture - A Marketing and promotion. Studies and Reviews, 88. General fisheries commission for the Mediterranean. FAO, Roma: 198 pp.
- Barten A. P. e Bettendorf, L.J., 1989, “Price Formation of Fish – An Application of an Inverse Demand System”, *European Economic Review* 33: 1509-25.
- Bjørndal T. e Conrad J.M., 1987, “The Dynamics of an Open Access Fishery”, *The Canadian Journal of Economics* 20 (1): 74-85.
- Bondand-Reantaso M.G., Arthur J.R., Subasinghe R.P.(eds) (2008) - Understanding and applying risk analysis in aquaculture. FAO, Fisheries and Aquaculture Technical Paper, 519, Roma: 304 pp.

- COM (2002) 535 definitivo del 9/10/2002, Comunicazione della Commissione al Consiglio e al Parlamento Europeo “relativa ad un piano d’azione comunitario per la conservazione e lo sfruttamento sostenibile delle risorse della pesca nel Mar Mediterraneo nell’ambito della politica comune della pesca”.COM (2009) 163 definitivo del 22/4/2009, Libro Verde sulla Riforma della politica comune della Pesca.
- Commissione europea (2010) 428 definitivo - Sintesi della consultazione sulla riforma della politica comune delle pesca. Documento di lavoro dei Servizi della Commissione.
- COM (2009) 163 definitivo del 22/4/2009, Libro Verde sulla Riforma della politica comune della Pesca.
- Commissione europea (2011) 1416 definitivo - Valutazione d’impatto sulla proposta di regolamento riguardante il nuovo strumento finanziario per la politica marittima e la pesca. Documento di lavoro dei Servizi della Commissione.
- COM (2009) 163 definitivo del 22/4/2009, Libro Verde sulla Riforma della politica comune della Pesca.
- Corte Dei Conti Europea (2011) - Le misure dell’UE hanno contribuito ad adeguare la capacità delle flotte pescherecce alle possibilità di pesca? - Relazione speciale n. 12/2011: 60 pp.
- Comunicazione della Commissione al Consiglio e al Parlamento Europeo, Una politica marittima integrata per una migliore governance nel Mediterraneo, Bruxelles, 11.9.2009, COM(2009) 466 definitivo.
- Edwards, M. (2000). The administration of fisheries managed by property rights. In Use of property rights in fisheries management. FAO Fisheries Technical Paper No. 404/1. Roma, Italia: FAO.
- European Commission (2009) - Green paper. Reform of the Common fishery policy. Bruxelles, 22.4.2009. COM(2009)163 final: 29 pp.
- FAO (1997) - Technical Guidelines for Responsible Fisheries, n. 5, Roma: 82 pp.
- FAO (1999) - Use of Property Rights in Fisheries Management. Fisheries Technical Paper, 505/1-2, Roma.
- FAO (1999) - Indicators for sustainable development of marine capture fisheries. Technical Guidelines for Responsible Fisheries, 8, Roma: 68 pp.
- FAO (2001) - Managing fishing capacity. A review of policy and technical issues. Fisheries Technical Paper, 509, Roma: 25 pp.
- FAO (2004) - The State of World Fisheries and Aquaculture. FAO, Roma: 153 pp.
- FAO (2010) - The State of World Fisheries and Aquaculture. FAO, Roma: 197 pp.
- Fukami, T. & Morin, P. 2003 Productivity-biodiversity relationships depend on the history of the community assembly. *Nature* 424, 423-426.
- Haraldsson G.Ó. e Árnason R., 2005, “Bio-economic models: a survey (2): *Bioeconomic*.”
- Hoggart D.D. et al., 2006, “Stock assessment for fishery management”. FAO Fisheries Technical Paper No. 487. Roma, Italia: FAO.
- Josupeit H. (2008) - World Octopus market. Globefish Research Programme (FAO), 1014-9546, v. 94: 65 pp.
- Ismea (2004) - Dalla conflittualità al partenariato: il ruolo della pesca nel Bacino del Mediterraneo, Osservatorio permanente sul sistema agroalimentare dei Paesi del Mediterraneo. Roma: 235 pp.
- Ismea-IAMB (2007) - Sistemi di qualità, rapporti commerciali e cooperazione euromediterranea. Possibili scenari per le imprese agroalimentari del Mediterraneo. Osservatorio permanente sul sistema agroalimentare dei Paesi del Mediterraneo: 280 pp.
- LEI (2006) - Economic Performance of selected European fishing fleet - Italy in Economic Assessment of European fisheries, EC Contract FISH/2005/12, Annual Report: 306 pp.
- Lem A. (2003) - The WTO Doha Round and Fisheries, What’s At Stake. FAO Fact Sheet for WTO Ministerial Conference in Cancun, Mexico, Fisheries Trade Issues in WTO.
- Lem A. (2006). WTO and fisheries: an update in IIFET 2006 Proceedings, Portsmouth, IIFET, Oregon State University.
- Libro verde “Riforma della Politica comune della pesca”, Bruxelles, 22.4.2009 COM(2009)163 definitivo.

- Piano di azione comunitario per la conservazione e lo sfruttamento sostenibile delle risorse della pesca nel Mar mediterraneo nell'ambito della politica comune della pesca. (COM 2002/535).
- Lovatelli A., Holthus P.F. (eds) (2008), Capture-based aquaculture. Global overview. FAO, Fisheries Technical Paper, 508, Roma: 298 pp.
- Malvarosa L., De Young C. (2010) - Fish trade among Mediterranean countries: intraregional trade and import-export with the European Union. Studies and Reviews. General Fisheries Commission for the Mediterranean. No. 86. FAO, Roma: 93 pp.
- Management Models for the North-Atlantic: An Overview". Final Report of the project: Bio-economic modelling of Mediterranean Fisheries BEMMFISH (Q5RS-2001-01533).
- Mipaaf, 2012, "Lo stato della pesca e dell'acquacoltura nei mari italiani", a cura di S. Cautadella e M. Spagnolo.
- Myers R.A. & Worn B. 2002 Rapid worldwide depletion of predatory fish communities. *Nature* 423, 280-283.
- OECD (1996) - The management of multispecies, multigear fisheries: the Italian approach, in "Study on the economic aspects of the management of living marine resources", Parigi: 174 pp.
- Palmer W. (2000). Legal planning for management of fisheries using property rights. In Use of property rights in fisheries management. FAO Fisheries Technical Paper No. 404/1. Roma, Italia: FAO.
- Parlamento Europeo, Dipartimento tematico delle Politiche strutturali e di coesione, 2007, "Gestione della pesca basata sui diritti", Seminario, Bruxelles, settembre 2007.
- Pearce D.W. e Turner R.K., 1991, "Economia delle Risorse Naturali e dell'Ambiente", Bologna, Italia: il Mulino.
- Regolamento (CE) n.302/2009 del Consiglio del 6 aprile 2009.
- Relazione annuale sull'attuazione del Fondo Sociale Europeo per la Pesca (2007), Bruxelles, 16.1.2009 COM(2009) 6 definitivo.
- Soto D., Aguilar-Manjarrez J., Hishamunda N. (eds) (2008) - Building an ecosystem approach to aquaculture. FAO/Universitat de les Illes Balears Expert Workshop. 7-11 May 2007, Palma de Mallorca, Spain. FAO, Fisheries and Aquaculture Proceedings, n. 14, Roma: 221 pp.
- Spagnolo M. (2009). I piani di gestione nel quadro della nuova politica della pesca europea. In Trevisan G. (a cura di) La nuova PCP per il Mediterraneo. Franco Angeli s.r.l., Milano, Italia.
- Spagnolo M. and Placenti V. (1998). I sistemi di informazione statistica della pesca in Italia. Franco Angeli s.r.l., Milano, Italia.
- Trevisan, 2012, "L'intervento pubblico nel settore ittico", Franco Angeli Ed..

# ANALYSIS OF THE FACTORS USED BY FARMERS TO MANAGE RISK. A CASE STUDY ON ITALIAN FARMS

JEL classification: ????????

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**Abstract.** *The study analyses the strategies Italian farmers use to cope with the risks that face their production. We develop cross-sectional and longitudinal analyses as well as analyses of correlation that underline the main differences between the way farms adapt their structure and management towards risk. The expected output is an analysis of farms' approach to risk management in relation to the risk exposure. The present study is the result of research conducted by INEA "Research and technical support on natural disasters, climatic and phytosanitary risks in agriculture and related policies", funded by the Italian Ministry of Agricultural Food and Forestry Policies. The main aim of this analysis is to explore the potential and the limitations of economic tools for climatic risk management in agriculture of new CAP 2013-2020 in relation to farms' needs, possible or necessary policies and future directions in the context of the Italian experience (National Solidarity Fund for natural disasters in agriculture, legislative decree n. 102/2004). The*

*chosen approach for the analysis of demand considers the climatic risk at the level of farms' approach to hedging risks in terms of the use of technical tools (agricultural practices, pesticides, fertilizers, irrigation) and economic/financial instruments (insurances, etc.). The results show a preference of technical tools and a strong need of a more integrated policy scheme, arising also from a new system and the potential synergies between risk management tools and other rural development measures of a more structural and management nature. The latter can contribute to a reduction of risk exposure and of the farms' vulnerability, first and foremost through agro-climatic-environmental measures, production diversification, irrigation infrastructures, technological and management innovations and formation-information-consultancy.*

*Keywords: climatic risk management, policy assessment, CAP sustainability, agriculture and climate change, insurance schemes.*

## 1. Context

The present study is the result of research conducted by INEA "Research and technical support on natural disasters, climatic and phytosanitary risks in agriculture and related policies", funded by the Italian Ministry of Agricultural Food and Forestry Policies. The Institute has been studying climate trends and implications in agriculture from more than 10 years. A specific activity has been active since 3 years ago on developing economic tools for climatic risk management,

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in particular within the National solidarity fund for natural disasters in agriculture that helps farmers through economic aids for insurance premiums and compensation funds. The research activity has been implemented with new scenarios and demands of CAP 2013-2020 that introduced in the II pillar (rural development) some risk management tools.

With these purposes in mind, the study presented in this report aims to make a scientific contribution to the debate by analysing the demand for risk management tools in agriculture in Italy.

Agriculture in the Mediterranean Basin has a higher degree of exposure and vulnerability to climatic risk as compared to other areas for the following reasons:

- It is based on the quality of production rather than on quantity; that is, production is concentrated on commodities with high added value and with significant economic relevance in terms of exports. Therefore, equal damages in quantitative terms, correspond to higher economic loss;
- Environmental and climatic conditions of Mediterranean countries, most notably Italy, are extremely heterogeneous. This factor renders production more diverse and rich but also entails higher risks for the territorial specificity of production.

Given these considerations, risk management on farms has always represented an important element and, in certain cases, a decisive factor for the farms' very existence.

Concerning in particular the economic risk management tools, they are considered useful, compared, for instance, with structural or infrastructural investments, for their flexibility and adaptability at the stage of definition as well as application (contracts with subject and objectives that can be modified in time and space). In the context of climate change, such characteristics are even more important (and indeed useful) given the uncertainty associated with the effects and impacts on production. This is because economic tools are adaptable in terms of objectives and substance as different scenarios may unfold.

The analysis of such issues in the international context demonstrates that the diffusion of risk management in agriculture through these economic tools, primarily insurances, is based on the possibility of benefiting from supportive public policies (Pontrandolfi and Nizza, 2011). In most cases, public support is in fact targeted to the specific needs in each context: extreme climatic events in the EU and North America, and more recently also in Australia, as well as the objectives of agriculture and development in South America, are all important examples (the most frequent being agricultural insurance).

The topic of risk management in agriculture has always been at the margins of the European debate. The main reasons lie primarily in the structure of EEC/EC/EU intervention, which, for nearly half a century, has effectively ensured the presence of mechanisms to stabilize the markets; second, the subsequent development of hedging instruments within individual Member States (MS), particularly those covering production risks, have created prospects for intervention that have not evolved according to common paths. Many of these instruments have developed along very different trajectories. This diversity of instruments available, the ongoing process of EU enlargement and the specific features of the various kinds of agricultural production have led to a complex and heterogeneous set of risk management systems in different Member States which differ in the instrumentation available and the degree of coverage that these practices achieve.

With the phasing out of guarantees provided by the CAP to European farmers in terms of stabilizing markets, the issue of risk management tools is gradually acquiring an ever more important role. This is reflected in a series of innovations that first appeared in the 2009 'Health



Check' and then in the Commission regulation for rural development policy 2014-2020 (reg. 1305/13). It is now possible to use part of the EU funds in order to promote farmers' access to risk management tools.

This innovation therefore concerns only the allocation of resources and not the definition of the specific instruments to be applied in the MS concerned. The forecast in question seeks to promote the management of production risks through incentives for insurance policies and participation in mutual funds to cover direct losses from specific events impacting negatively on the quantity and quality of farm production, such as poor weather, crop and animal diseases, environmental accidents and so forth.

The European Commission's new regulation on rural development policy 2013-2020 (reg. (CE) 1305/13) introduces a collection of measures for risk management in agriculture, providing support for:

- crop, animal and plant insurance premium subsidies for plans that cover financial losses caused by extreme climatic events or by animal/plant diseases or parasitic infections;
- mutual funds to pay financial compensation to farmers for losses;
- an income stabilization tool, in the form of financial contributions to mutual funds to compensate farmers that have suffered a loss of over 30 percent of their income.

Referring to the Italian experience, several issues need to be deepened and expanded in order to define the future CAP and to evolve the risk management system. In particular the most critical and common points are:

- the lack of preliminary analysis on risk conditions (parameters, risk levels and interrelations) and risk assessment that explain and justify the choices made on policies and public aid;
- the lack of analysis on demand for risk management tools, with policies oriented more to the market supply (insurances); this tendency can create an inefficiency and ineffectiveness of policy and the tools (economic aids even for not-insurable risks, consequent unbalance between contributions to premiums and ability of companies to indemnify damages, insufficient financial coverage of damages);
- a low level of integration among the available risk management strategies (a reduction of exposure and vulnerability, transferring and acceptance) and a policy focus confined to the transfer of risk.
- risk management through economic tools should represent just one component of a wider strategy. Only a multilevel approach (at farm and territorial levels, with management and structural measures) will ensure the effectiveness of policies in the long term.

In light of these considerations, it is important to evaluate the contributions that economic tools for risk management can bring in the new context of CAP, in relation to farms' needs and approaches. Moreover, it is crucial that, when designing these tools, consistency with other key agricultural objectives is ensured with other CAP subsidies.

The chosen approach for the analysis of demand considers the farms' approach to hedging risks in terms of the use of technical tools (agricultural practices, pesticides, fertilizers, irrigation) and economic/financial instruments (insurances, etc.). The research analyses the strategies Italian farmers use to cope with the risks that they face in production through cross-sectional and longitudinal analyses as well as analyses of correlation that underline the main differences between the way farms adapt their structure and management towards risk.

## 2. Methodology and dataset

The database is taken from the *Italian farm accountancy data network* (FADN)<sup>1</sup> for farm characteristics at the provincial/regional level. Data on insured farms are also available.

The indicators describing the choices to manage risk at the farm level include different tools for risk management, technical and financial instruments. In particular, the indicators chosen for the analysis are:

*Technical tools:*

- diversification (numbers of different crops, mix crop-animals, etc.)
- use of chemical inputs (pesticides and nutrients)
- irrigation (presence and systems)
- advice service (presence and type of service)
- farm certification
- costs for maintenance
- investments in new techniques and machines

*Financial tools:*

- savings
- insurance
- type of trade (wholesale, retail, consumers, cooperative regular VAT, cooperative special VAT, industry)
- cash level of the farm
- EU payments.

The dataset used for the analysis is the *Italian farm accountancy data network* (FADN-RICA), which provides very precise information at the individual scale (the main mission of FADN is farm accountancy). This national sample is stratified according to the region, the economic dimension and the specialization of the farm. It provides outstanding information regarding the annual accounting of Italian farms. A precise study of the operating expenses allows to identify and to measure with precision the roles of different risk management tools that are used by farmers to cope with risk, either technical or financial, *e.g.* crop diversification and crop insurance.

Given the need for a longitudinal analysis, the sample is made up of 3,213 professional Italian farms that are continuously surveyed between 2005 and 2012. This balanced sample allows for comparisons among years and for a study of the dynamics of Italian farms regarding risk management.

Within the FADN database, the choice of the variables takes into account (Appendix 1):

- The structure of the farm, considering its total, cultivated and irrigated area.
- The equipment of the farm through the mechanization, investments and amortizations.
- The activity of the farm, given total and sold production, as well cost structure.
- The financial structure of the farm including fixed and operating capital as well as land owned.

<sup>1</sup> The Farm Accountancy Data Network (FADN) has been created to satisfy the information needs of the European Union relating to the business operation of agricultural enterprises. INEA manages the database for Italy ([www.inea.it](http://www.inea.it)).

- Risk management tools such as crop insurance, consultancy and CAP payments.
- Crop production, considering both its characteristics (cultivated area, income, number of crops and cost structure) and operating expenses (seeds, water, chemical inputs, crop insurance, consultancy and certification).
- Livestock (area, income and expenses, number of product, insurance and certification).
- Transformed products (income and number of products).

### ***Specific categories***

The analysis is carried out at the national level. However, for the sake of precision, the analysis may be broken down according to the main regions, farm production and economic dimension. The detail of these categories is provided below (tab. 1). The regions are grouped according three main areas:

- North: Valle D'Aosta, Piemonte, Lombardia, Trentino, Alto Adige, Veneto, Friuli Venezia, Giulia, Liguria and Emilia Romagna.
- Centre: Toscana, Marche, Umbria and Lazio.
- South and Islands: Abruzzo, Molise, Campania, Calabria, Puglia, Basilicata, Sicilia and Sardegna.

Farm production is also grouped according to these main categories:

- Specialization in field crops.
- Specialization in fruits and vegetables.
- Specialization in meat.
- Mix.

**Tab. 1 - Repartition of Italian farms of the sample in 2012 according to their region and specialization**

<b>Region</b>	<b>Field crops</b>	<b>Fruits/Vegetables</b>	<b>Meat</b>	<b>Mix</b>	<b>Total</b>
1. North	409	645	372	41	1,467
2. Centre	235	165	106	33	539
3. South/Islands	381	506	254	66	1,207
<b>Total</b>	<b>1,025</b>	<b>1,316</b>	<b>732</b>	<b>140</b>	<b>3,213</b>

*Source: Elaboration INEA on FADN data*

The economic dimension is also taken into account through the European Dimension Units (EDU) ranked in 7 classes. UDE 1 and 2 are not relevant due to the very low number of observations. UDE 4, 5 and 6 are the most numerous (tab. 2).

**Tab. 2 - Repartition of Italian farms of the sample in 2012 according to their UDE and specialization**

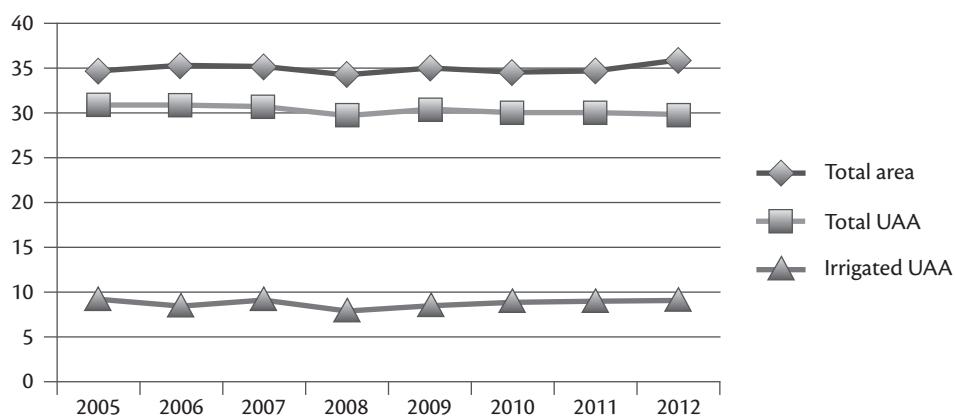
UDE	Field crops	Fruits/Vegetables	Meat	Mix	Total
1	0	0	0	0	0
2	67	57	2	2	128
3	335	307	74	43	759
4	207	334	134	37	712
5	188	291	163	32	674
6	205	302	272	21	800
7	17	18	40	2	77
8	6	7	47	3	63
Total	1,025	1,316	732	140	3,213

Source: Elaboration INEA on FADN data

### 3. Analysis of data

From a very general point of view, the structure of Italian farms of the sample has not changed much between 2005 and 2012 (graph 1). Over that period, the total area has only increased by 3.5 % while the total usable agricultural area (UAA) rose at the same time from the same proportion. The irrigated UAA remains quite stable and represents on average 30% of the UAA in 2012. This result seems to indicate that the CAP did not affect the fundamental structure of Italian farms over the last years.

**Graph 1 - Structure of Italian farms between 2005 and 2012 according to the sample (all farms, mean values in ha)**

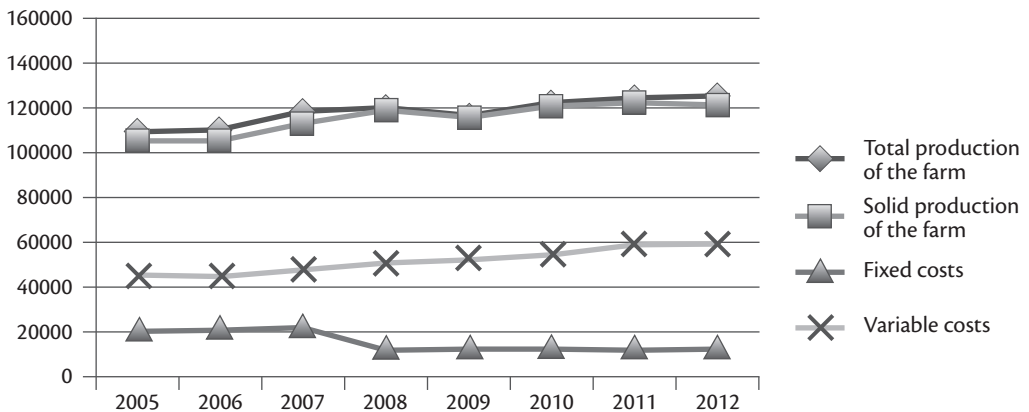


Source: Elaboration INEA on FADN data

By contrast, the financial analysis of the same farms reveals notable changes (graph 2). The total and marketed production increased respectively by 14% and 16%. The most important change comes from the costs structure, which evolved towards a more flexible model. Fixed costs dropped by 37% while variable costs increased by 30% over the period. One should notice that variable costs include risk management practices such as buying crop insurance policies or chemical inputs. As a result, Italian farms reduce their break-even point, thus becoming less sensitive to changes in their income level while protecting it at the same time. Yet, amortizations are generally greater than investments regarding machinery, which may lead to a progressive obsolescence of production factors.

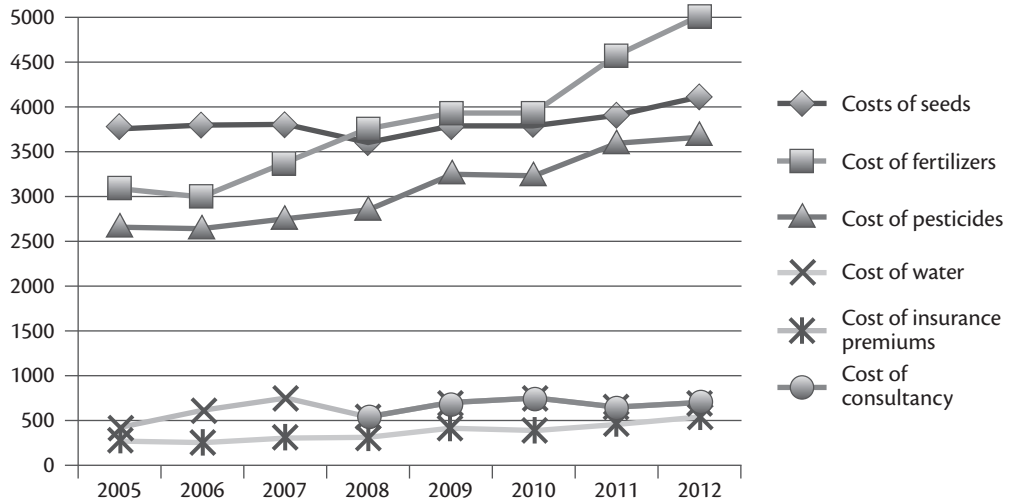
Charges devoted to risk management are classified among variable costs due to their optional and activity-dependent characteristics (graph 3). Observing in detail the structure of variable costs shows that expenses in risk management tools have notably increased. For instance, the costs of fertilizers and pesticides, which are commonly used to protect crop yields, respectively increased annually by 6% and 4%. Crop insurance premiums have increased by 2.2 times while the number of farms subscribing crop insurance policies rose by 1.5 times since 2005, when the reform of the national crop insurance system was implemented. Moreover, between 2008 and 2012, consultancy costs increased by 35%.

**Graph 2 - Financial analysis of Italian farms between 2005 and 2012 according to the sample (all farms, mean values in €)**



Source: Elaboration INEA on FADN data

**Graph 3 - Evolution of expenses for crop production between 2005 and 2012 according to the sample (all farms, mean values in €)**



Source: Elaboration INEA on FADN data

Water is a particular kind of input: while it is essential for crop production, it is subject to pressures on its availability due to drought episodes and its use and related cost is fixed by specific policies, because of the public nature of water resources, so the cost is not subject to market dynamics. Over the period of study, the cost of water remained quite low compared to other inputs. It increased annually by 6% but this trend hides wide disparities among years, with the highest expenses being made in 2009 and not within the driest years.

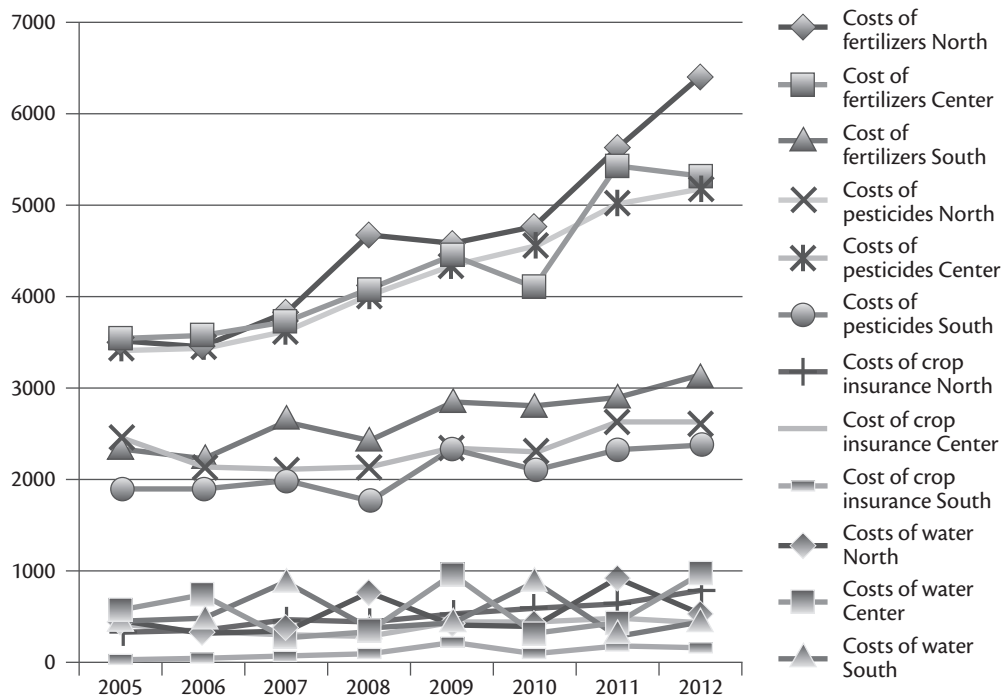
The results clearly exhibit two trends that are amplified overtime: 1) Italian farms get significantly more coverage against natural hazards in the crop sector, whatever the instrument considered; 2) technical tools are preferred to financial tools, mainly for their flexibility and a limited cost per unit. For instance, an application of chemical inputs on crops can be done on request, while crop insurance subscription needs to be done before the season begins. Given the relative stability of the structure of the farms included in the sample, we can infer that farmers combine rather than they substitute risk management tools.

### **Geographic distribution**

There exist strong regional disparities among Italian farms. Farms located in the Centre of the country are much larger (40 ha in 2012) than those located in the North and the South (respectively 27 ha and 29 ha in 2012). However, total production in the North and the Centre are somehow comparable while the South has very low levels of production. Moreover, farms located in the north of Italy use the most fertilizers, pesticides and crop insurance. Despite these structural differences which denote a higher productivity when moving northward, we notice the same trends overtime that at the national scale, *i.e.* the stability of UAA and increases in total production. Indeed, the evolution of the cost structure is similar with a decrease in fixed costs and an increase in variable costs. In line with that result, one can also notice that the

main expenses made for managing crop risk are dramatically increasing in all areas (graph 4). The dynamics in the use of risk management tools differs among the location: the use of fertilizers increase the most in the North, the use of pesticides increase the most in the Centre and the use of crop insurance policies increase the most in the Centre. Despite huge annual variations, the cost of water remains broadly stable on average between 2005 and 2012, except in the Centre where it increases by 75% over the period.

**Graph 4 - Evolution of expenses for crop production for Italian farms of the sample between 2005 and 2012 according to their location (all farms, mean values in €)**



Source: Elaboration INEA on FADN data

### ***Differentiation in production***

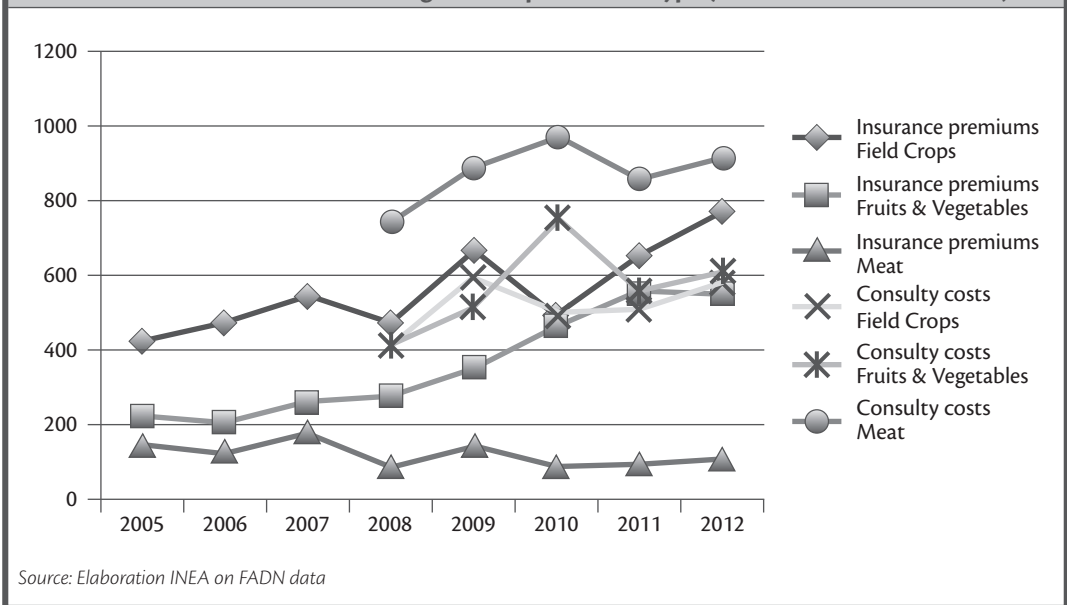
We differentiate four main types of farm production (field crops, fruits & vegetables, meat and mix). Studying the mix of production, which combines both crops and animals, leads to results difficult to analyse. The reason is the small number of farms classified in this category. Then, we compare the evolution of expenses devoted to crop or cattle insurance and to consultancy. These two instruments, whose use is strongly encouraged within the CAP for risk management, are available for all types of production. While insurance is used to hedge yield risk, consultancy aims at helping the farmer to adopt optimal practices.

The structures of farms that cultivate field crops and those that grow fruits and vegetables are clearly different (graph 5). The former are associated with a greater UAA and owned land as well as greater resulting production. As a result, farms cultivating field crops are the most

insured. One must also note that crop insurance policies were primarily designed for this category of farms, which explains the strong and continuous increase of crop insurance subscription since 2003. The recent development of crop insurance policies devoted to fruits and vegetables offers these sectors a new opportunity to hedge their risks. Consultancy costs follow generally a positive and similar trend regardless of the crop considered. It also appears that farmers devote annually the same amount of funds to crop insurance and consultancy. Moreover, the use of these two instruments does not appear to be correlated, probably because they do not cover the same kinds of risks.

Meat production can also be insured and benefit from consultancy. However, the costs of both instruments remain very low. Since at least 2008 breeders have spent more money in consultancy than in livestock insurance. Such behaviour may be explained by the relative inefficiency of current insurance tools in relation to the needs of farmers.

**Graph 5 - Evolution of insurance and consultancy costs for Italian farms of the sample between 2005 and 2012 according to their production type (all farms, mean values in €)**



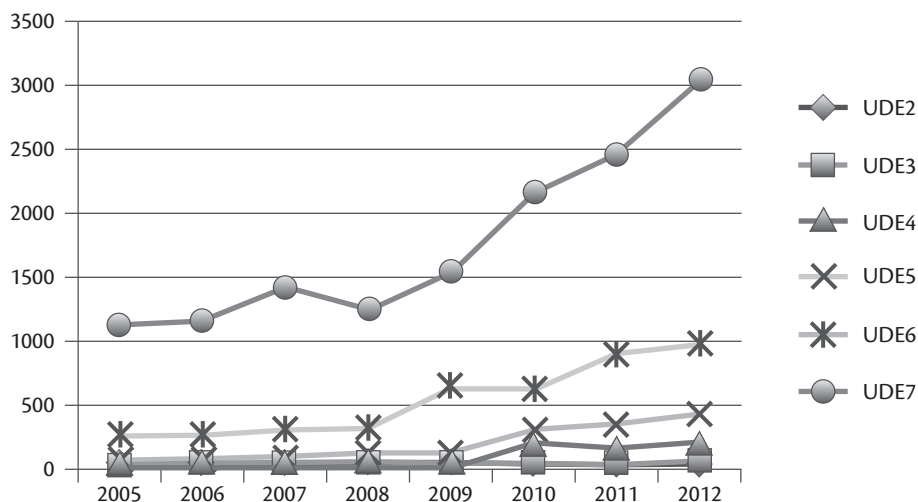
### Size matters

We study in this subsection the influence of farm size (measured by its economic dimension) on risk management strategies. The results offer a contrasted view of crop insurance practices (graph 6). Except for the minority of farms belonging to UDE2 and UDE8, expenses in crop insurance are strongly increasing over the period 2005-2012 (e.g. +764%, i.e. +31% annually, for UDE4 which includes a large number of Italian farms).

However, such an increase is mainly due to a very low starting point (the legislative reform of 2004 started in 2005). In fact, only the biggest farms (UDE7 and UDE8) fully benefit from crop insurance with expenses rising annually by 18% and 13%, respectively. Similar observations can be made regarding the costs of consultancy as well as chemical inputs: medium farms are the most dynamic regarding risk management but only rich farms can afford the cost of the coverage.



**Graph 6 - Evolution of crop insurance premiums for Italian farms of the sample between 2005 and 2012 according to their economic dimension (all farms, mean values in €)**



Source: Elaboration INEA on FADN data

### 3.1 Combination of risk management strategies

Descriptive statistics can be complemented by an analysis of the relationships between risk management strategies because farmers have the choice to use simultaneously many instruments. A convenient way to study dependencies among costs devoted to risk hedging (indicators described before), is to compute coefficients of correlations. The indicators determine the degree to which two variables movements are associated, with a range comprised between -1 (perfect negative correlation, *i.e.* perfect substitution of instruments) and 1 (perfect positive correlation, *i.e.* perfect complementary of instruments), 0 meaning no correlation at all. The significance of the correlation coefficient (CC) is measured at the 5% level (denoted with a star in the tables), which is the standard confidence interval in statistics. Throughout the analysis, the large number of observations in the sample guarantees significance for most associations, even with very low correlation coefficients.

#### Animals

Regarding animal breeding, the number of products is almost independent of the sold production (CC = 0.1789, close to 0) but rather is linked to the farmed area (CC = 0.8427, close to 1). The same relationship is observed between the level of insurance premiums and the area (tab. 3). One should notice that crop insurance and certification are quite independent because these strategies correspond to different aims, *i.e.* protection versus valorisation of the production.

**Tab. 3 - Matrix of correlation between livestock revenue and risk management tools according to the sample (all farms, all years)**

<b>Correlation Coefficient (CC)</b>	<b>Sold production</b>	<b>Operating expenses</b>	<b>Number of products</b>	<b>Area (UBA)</b>	<b>Insurance premiums</b>	<b>Being certified</b>
Sold production	1.0000					
Operating expenses	0.8966*	1.0000				
Number of products	0.1789*	0.1340*	1.0000			
Area (UBA)	0.8427*	0.8509*	0.2166*	1.0000		
Insurance premiums	0.2702*	0.3443*	0.1094*	0.2778*	1.0000	
Being certified	0.0423*	0.0241*	0.1787*	0.0410*	0.0241*	1.0000

Note: \* indicates a correlation significant at the 5% level.  
 Source: Elaboration INEA on FADN data

### **Crops**

We notice that the costs of seeds, fertilizers and pesticides are largely linked to the sold production (tab. 4). Therefore, farms make such expenditures according to the level of income they are expecting. Conversely, the relation between the sold production and the number of crops is very weak, which appears to be a choice linked to the cultivated area.

Crop insurance, consultancy and certification appear to be used independently of both the production structure (cultivated area, number of crops) and the context of risk management (chemical inputs). They are employed in specific contexts and not systematically. For instance, 18% of all Italian farms sell at least one certified product. This proportion varies among sectors but it systematically remains stable overtime.

Both the intensity of the correlations and their significance level are preserved among farm specialization, location and dimension.

**Tab. 4 - Matrix of correlation between crop revenue and risk management tools according to the sample (all farms, all years)**

<b>Correlation Coefficient (CC)</b>	<b>Sold production</b>	<b>Operating expenses</b>	<b>Number of different crops</b>	<b>Area (UBA)</b>	<b>Variable costs</b>	<b>Variable cost margin</b>	<b>Cost of seeds</b>	<b>Cost of fertilizers</b>	<b>Cost of pesticides</b>	<b>Cost of water</b>	<b>Crop insurance premiums</b>	<b>Cost of consultancy</b>	<b>Being certified</b>	<b>Miscellaneous costs</b>
Sold production	1.0000													
Operating expenses	0.8349*	1.0000												
Number of different crops	0.0797*	0.0708*	1.0000											
Area (UBA)	0.3910*	0.3673*	0.2008*	1.0000										
Variable costs	0.8478*	0.9847*	0.1063*	0.4381*	1.0000									
Variable costs margin	1.0000*	0.8465*	0.1002*	0.4251*	0.8478*	1.0000								
Cost of seeds	0.6337*	0.7954*	0.0378*	0.1860*	0.7614*	0.6665*	1.0000							
Cost of fertilizers	0.6797*	0.7420*	0.1254*	0.5763*	0.7593*	0.6978*	0.4349*	1.0000						
Cost of pesticide	0.7029*	0.7102*	0.0868*	0.3991*	0.7216*	0.7222*	0.3785*	0.7042*	1.0000					
Cost of water	0.3810*	0.4195*	0.0248*	0.2168*	0.3846*	0.3607*	0.2756*	0.3670*	0.3864*	1.0000				
Crop insurance premiums	0.2875*	0.3398*	0.0184*	0.1084*	0.3386*	0.2592*	0.1108*	0.2223*	0.3152*	0.2107*	1.0000			
Cost of consultancy	0.2940*	0.3725*	0.1420*	0.4209*	0.4041*	0.3128*	0.1383*	0.4581*	0.3506*	0.1200*	0.0952*	1.0000		
Being certified	0.0128*	0.0172*	0.0799*	0.0076*	0.0206*	0.0045*	0.0328*	0.0245*	0.0362*	0.0270*	0.0317*	0.0060*	1.0000	
Miscellaneous costs	0.5267*	0.6948*	0.0100*	0.0402*	0.6472*	0.4745*	0.3789*	0.2920*	0.3139*	0.1510*	0.2643*	0.0374*	0.0092*	1.0000

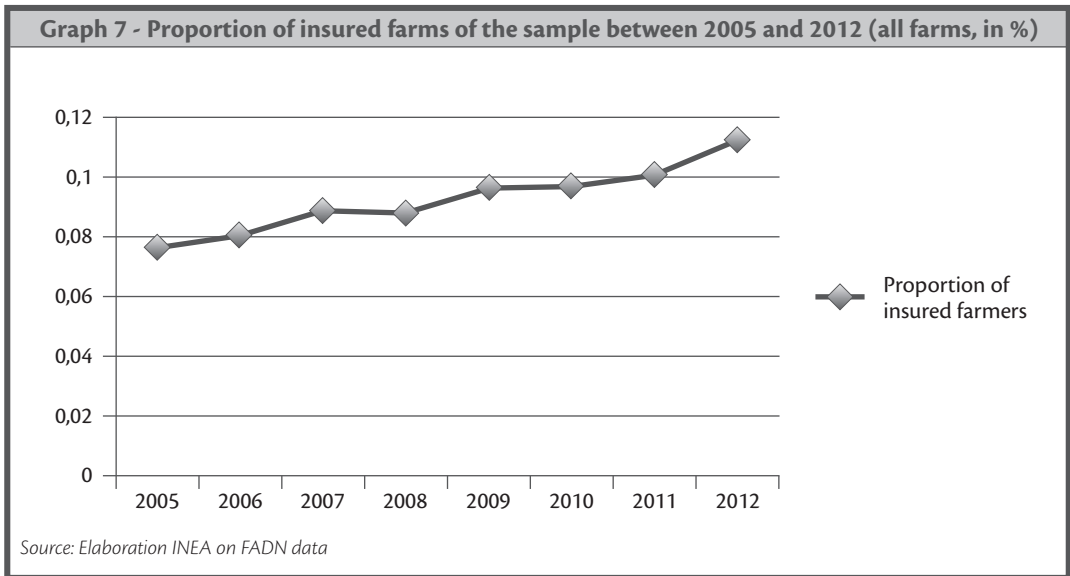
Note: \* indicates a correlation significant at the 5% level.  
Source: Elaboration INEA on FADN data

### 3.2 Focus on the influence of crop insurance in farm management

In this sub-section, we focus more specifically on crop insurance subscription in order to understand which farms are insured and the consequences in terms of farm income and risk management.

#### Insured farmers

Thanks to a changing institutional context (cfr. parr. 1.1 and 2.1), farmers who decide to subscribe to crop insurance policies are more numerous each year (graph 7).



This regular increase concerns all regions and specialities, however we can notice strong disparities according to our sub-classifications (tab. 5). For instance, being in the North of Italy doubles the probability of insuring the crops. Not surprisingly, farms specialized in field crops or fruits and vegetables are more willing to insure their crops than farms that mix their production because the latter are more diversified. The economic dimension is finally a discriminant indicator because the larger is the farm the more it is insured.

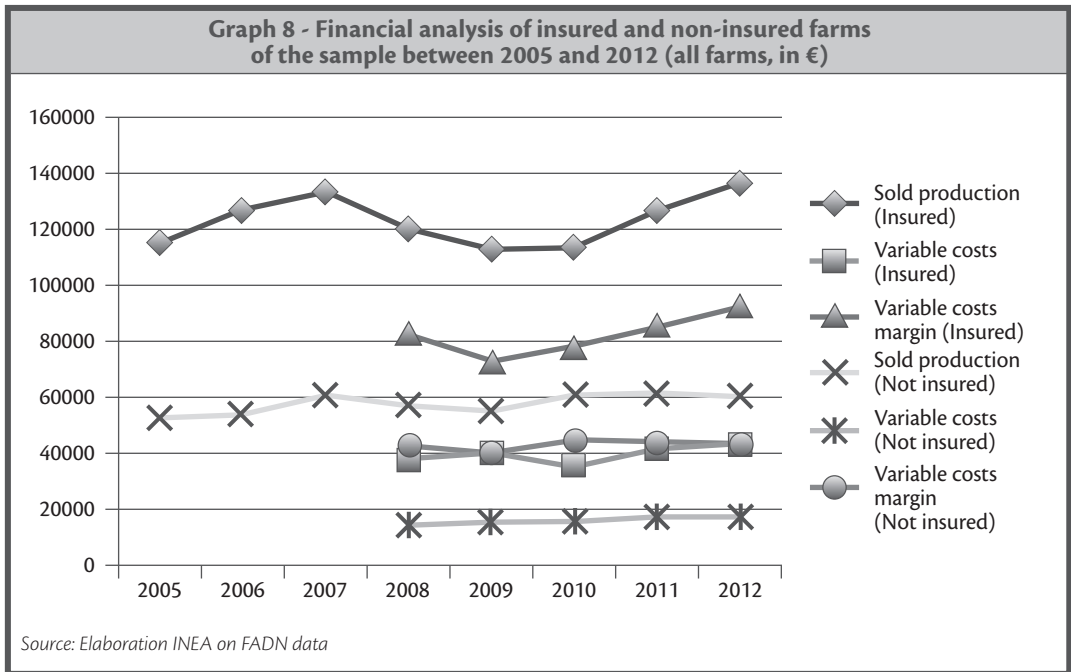
**Tab. 5 - Proportion of insured farmers of the sample according to their location, specialization and economic dimension (all farms, all years, in %)**

		<b>Insured</b>	<b>Not insured</b>
Region	North	12,1%	87,9%
	Centre	9,0%	91,0%
	South	5,8%	94,2%
Specialization	Field crops	10,9%	89,1%
	Fruits/Vegetables	12,5%	87,5%
	Meat	1,6%	98,4%
	Mix	4,1%	95,9%
Economic dimension	UDE2	4,5%	95,5%
	UDE3	4,6%	95,4%
	UDE4	6,1%	93,9%
	UDE5	9,2%	90,8%
	UDE6	13,1%	86,9%
	UDE7	15,4%	84,6%
	UDE8	13,9%	86,1%

*Source: Elaboration INEA on FADN data*

When considering the detail, it appears clear that insured farms benefit from higher sold production which is quite volatile over time (graph 8). The charges induced by crop insurance premiums and the costs associated with other risk management strategies lead to an increase in variable costs after 2010 but this increase is more than compensated by a rise in the sold production. As a result, insured farms benefit from a higher variable cost margin. This indicator, which is computed as the difference between the sold production and the sum of variable costs, is associated with economic performance.

Non-insured farms benefit from a more stable sold production (+2% annually), which may justify their choice to avoid insurance. Yet, the level of variable costs increases at a higher rhythm (+4% annually), which leads to a continuous decrease of the variable cost margin since 2010. This result denotes a decreasing competitiveness of non-insured farms

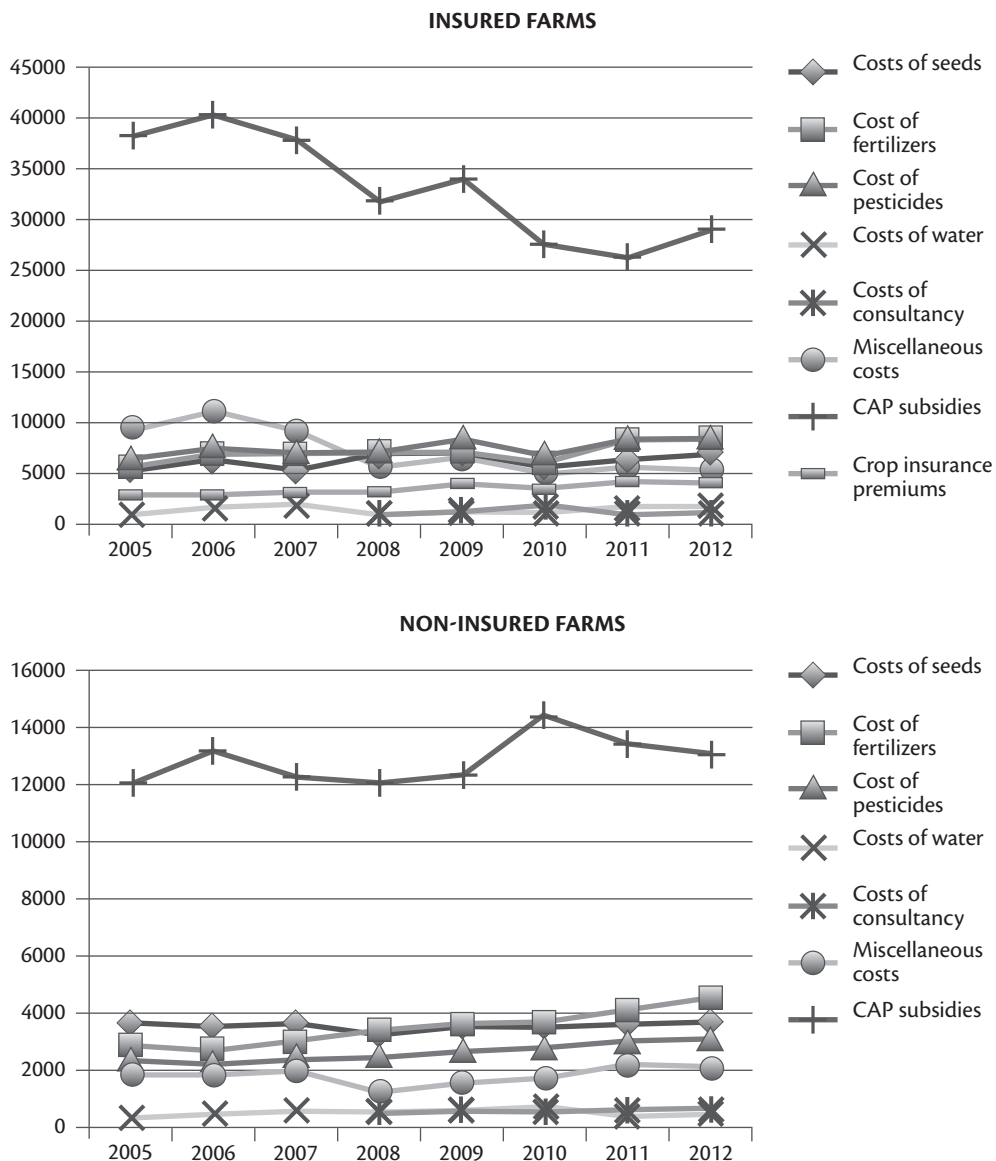


### Being insured and risk management

Insured farmers benefit from higher CAP payments, because their farms are fundamentally larger (graph 9). Yet, these payments are very irregular. After a continuous pace of growth, they continuously decreased after 2006, despite a slight increase in 2009 and 2012. Non-insured farms are in an opposite situation because the CAP payments they receive increased by 10% between 2005 and 2012. CAP payments therefore seem more and more targeted toward small farms. The result is that European subsidies cover on average 100% of variable costs for non-insured farms while they only cover between 70% and 100% of such costs for insured farms.

Given that context, it is not surprising to observe that non-insured farms increase their level of variable charges as CAP subsidies increase. Over the period 2005-2012, all charges increased, especially pesticides and fertilizers. Although very small, consultancy costs increased too. Facing a drop in CAP subsidies, insured farms tried to stabilize their variable costs by reducing drastically miscellaneous costs in favour of identified risk management tools. Between 2008 and 2012, the value of consultancy costs increases by 26%, while insurance premiums rise by 44%. A dichotomy between insured and non-insured farms can be observed regarding expenses in seeds: Being insured, a farmer is incentivized to select more expensive plants.

Graph 9 - Evolution of expenses for crop production between 2005 and 2012 for insured and non-insured farms of the sample (all farms, mean values, in €)



Source: Elaboration INEA on FADN data

## 4. Conclusions

Taking into account the methodological approach and the dataset, it is possible to find significant elements that should give cause for thought for the design of the risk management tools in the new CAP.

The following key points suggested by the analysis show that in perspective it may be more effective to rethink the policy design rather than adjust it each time it is necessary, that is each year.

Italian farms benefit from a wide range of instruments able to help them to face risks. While their use is globally growing, such trends must be discussed and placed in the context of contrasted regions, productions and economics dimensions.

The behaviour of farms seems not to have really changed in order to adapt to climatic risks. The structure of farms does not seem to be affected by the CAP during the period 2003-2012

In fact, only large and rich farms can afford all additional expenses required to hedge risk (crop insurance, pesticides, fertilizers, water and consultancy). They do so without changing their production structure overtime.

In case of a drop in the sold production, those farms having a higher proportion of variable costs are able to reduce their variables charges, thus getting more flexibility.

Among the instruments used to hedge risks, the technical ones, use of chemical inputs and water, are the most employed.

Insurance is marginally used, both to cover crop and animal yields, despite a trend favourable to its development.

The population of crop-insured farmers exhibits a different behaviour compared to non-insured producers that is characterized by the development of alternative forms of risk management (consultancy and certification) and the regression of other forms of hedging.

The trends of variable costs of the farms exhibit a clear preference for technical tools instead of financial tools in order to hedge risk. This creates also a stronger pressure on the environment (pesticides, fertilizers and water).

Policy measures should have the objective to invert these trends, improving or finding new tools more appropriate and convenient for farmers.

In order to be efficient, the allocation of public funds for economic risk management tools should not be horizontal, but rather strongly based on a territorial analysis of the demand, considering exposure (to what and where), vulnerability (major damages) and farm structure.

The livestock sector is affected by damages, but little answers are given to hedge risk for phytosanitary risk. Farms seem uninterested in the current financial tools.

Within the crop sector, the trend of costs of pesticides shows the lack of alternative and enough flexible management tools for phytosanitary risk.

Sanitary risks need a management designed at an upper scale, for instance through mutual funds.

Despite the exposure and the vulnerability of their territory, the trends of crop insurance costs are positive only for big farms in income and size. The other categories where the great part of Italian farms is inserted show a decrease in trend.

Policy should re-think the scheme for insurance subsidies or introduce more adequate tools in order to encourage risk hedging in medium-small farms (for instance, investing more in advice systems or other financial tools).

The integration gives opportunities to use the potential synergies between risk management tools and other rural development measures of a more structural and management nature. First



and foremost, these include agro-climatic-environmental measures, production diversification, irrigation infrastructures, technological and management innovations and formation-information-consultancy.

The effectiveness of this integration can be achieved only if the actions are applied at a collective level (groups of farms).

## REFERENCES

- Adinolfi F., Capitanio F., D'Auria R., Guido M. and Di Domenico M. (2012), *An hypothesis for the activation of the IST (Income Stabilization Tool) measure in Italy*, in Risk management in planning for rural development 2014-2020 Ministero delle Politiche agricole alimentari e forestali
- Bielza Diaz-Caneja M., Conte C.G., Dittmann C., Gallego Pinilla F.J., Stroblmair J. (2009), *Agricultural Insurance Schemes*, Joint Research Centre Ispra
- Chatellier V. (2011), *Price volatility, market regulation and risk management: challenges for the future of the CAP*, International Agricultural Policy, vol. 1, pp 33-50.
- Cafiero C., Capitanio F., Cioffi A., Coppola A. (2007), *La gestione del rischio nelle imprese agricole tra strumenti privati e intervento pubblico*, Agriregionieuropa Anno 3 n. 8/2007
- Capitanio F., Bielza M.D.C., Cafiero C., Adinolfi F. (2011), *Crop insurance and public intervention in the risk management in agriculture: does farmers really benefit?*, Applied Economics, Volume 43, Issue 27 November 2011, pp. 4149-415
- Capitanio F., Cioffi A. (2011), *Gestione del rischio in agricoltura ed intervento pubblico. Evoluzione, sostenibilità e prospettive del sistema italiano*, Economia e Diritto Agroalimentare, XVI Vol. 3, pp. 395-410.
- Chatellier V. (2011), *Price volatility, market regulation and risk management: challenges for the future of the CAP*, International Agricultural Policy, vol. 1, pp 33-50.
- European commission (2005), *Commission staff working document on risk and crisis management in agriculture*, SEC (2005) 320, Bruxelles 09/03/2005
- European commission (2013), *Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) (COM(2011)0627 final/3 - C7-0340/2011 - COM(2012)0553 - C7-0313/2012 - 2011/0282(COD) - 2013/2530(RSP)*
- European commission (2013), *Green Paper on the insurance of natural and man-made disasters* (Strasbourg, 16.4.2013 COM(2013) 213 final).
- Goodwin, Barry K., Monte Vandever, and John Deal. "An Empirical Analysis of Acreage Distortions and Participation in the Federal Crop Insurance Program", *American Journal of Agricultural Economics*, Volume 86 Issue 4 Page 1058-1077, November 2004.
- Goodwin, Barry K., R. Schnepf, and E. Dohlman. "Modelling Soybean Prices in A Changing Policy Environment", *Applied Economics*, 37(2005): pp. 253-26.
- Goodwin, Barry K. and A. K. Mishra. "Are 'Decoupled' Payments Really Decoupled? An Empirical Investigation". *American Journal of Agricultural Economics*, 88(2006): 73-89.
- Istituto Nazionale di Economia Agraria (2010), *Rapporto sullo Stato dell'Agricoltura*, INEA Roma
- Joint Research Centre (2009), *Le assicurazioni agricole basate su indici presentano forti limiti di attuabilità nell'UE*, JRC News Release Bruxelles 30/09/09
- Mahul O. e Stutley C. (2010), - *International Experience with Agricultural Insurance: Findings from a World Bank Survey of 65 Countries- Annex E*, annex to the book *Government Support to Agricultural Insurance: Challenges and Options for Developing Countries*, The World Bank Washington Dc
- Organization for Economic Co-operation and Development (2009), *Managing Risk in Agriculture: A Holistic Approach*, OECD Paris

- Pontrandolfi A. (2013), *Risk management tools in agriculture: some reflections on opportunities and limitations of the European commission proposal*, in PAGRI n. 2/2013
- Pontrandolfi, A. and Nizza G. (2011b), *Prospettive della gestione del rischio in agricoltura. Riflessioni per un sistema integrato per la PAC post 2013*, INEA Roma.
- Teresa Serra, David Zilberman, Barry Goodwin, and Keijo Hyvonen. "Replacement Of Price Support Measures By Area Payments In the E.U. and the Effects on Pesticide Use", *American Journal of Agricultural Economics*, 87: (2005), Pages 870-884.

# YOUNG FARMER AND FARM PERFORMANCE

JEL classification: ???????

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**Abstract.** *Recent data on the Italian farms confirm the excessive aging of farmers. Most of the literature argues that a low inclusion of young people in the management of the farms determines a reduction in strength and farm efficiency, consequently increasing the risk of disinvestment of farming. The resolution of this problem becomes, therefore, an imperative for the Common agricultural policy (CAP), wanting to prevent the abandonment of domestic agriculture. So, much of the literature has devoted to this topic, but it has rarely provided statistical evidences on the relationship between age of farmer and farm performance. With the aim to added empirical evidences on this issue I use different econometric techniques on a panel data of the Farms Accounting Data Network (FADN), trying, primarily, to investigate in detail this relationship, showing the chan-*

*ges in the different productive contest and for dissimilar dimension of farm performance; secondly, to verify the presence of a probable reverse causality in this correlation, which is determined by the top performing farms that encourage young entrepreneurs to get into the agricultural business. The main results showed that: there is a positive correlation between young farmers and farms performance that remain positive even if I focused in specific agricultural sectors and using different proxy for farm performance; but when I control for the endogeneity of the age variable the relationship young-performance change the sign, showing that the observed “performing effect” of young farmer is due mainly to the ability of the elderly farmer, aiming pass or sell their farm, rather than the skill of the young farmer incoming.*

## 1. Introduction

The strong imbalance of the farmers generational structure is a very relevant subject to Common agricultural policy (CAP), aiming to develop the European agriculture, to preserve agricultural land use in the country, guarantee the survival of domestic farms. In particular in Italy this is an important theme, because the strong presence of older farmers (37 % of farmers are more than 65 years and 17% are over 80 years old) (Istat Agriculture Census, 2011) which underlines the high risk of disinvestment of agriculture by elderly farmers. So most of Italian literature is addressed on this matter to support the political choices.

The main specific literature highlighted the positive contribution of young people in the management of farms. In favor of young farmers is commonly claimed that they have a longer time horizon that guarantees long-term investments and business (Weiss, 1999; Kimura and Le Thi, 2013; Corsi, 2009, Mazzieri and Esposti, 2005), higher average level of education by which they realize better farm management (Carillo, 2014; Lobley, 2010), superior sensitivity to innovations (Corsi, 2009; Lobley, 2010; Cersosimo, 2012) and greater openness to adopt

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environmental friendly techniques of production (Cersosimo, 2012; Lobley, 2010). Consequently, it is argued that younger farmers assure higher performance for farms. But to the best of my knowledge, in the Italian literature there are only a few studies providing statistical evidence on the impact of farmers' age on farm performance. Moreover, it rarely investigates this correlation with appropriate econometric techniques and therefore it cannot be excluded a probable *endogen effect*, i.e. the effect of the choice of the young people to allocate themselves in the more performing business.

On this last hypothesis there are some studies showing that the prospect of passing the farm to a young people leads the elderly farmer to manage the farm in more efficient way (Kimhi *et al.*, 1995; Potter e Lobley, 1996; Lobley *et al.*, 2010). A "long-term vision" of elderly farmer aiming to pass a healthy and competitive farm to their heirs leads him to make investments, increasing the size and solidity of their farm, and to have a stronger focus on efficient management, also into old age (Carillo, 2014). It should be noted, therefore, the *performing effect* is due to the ability of the elderly farmer aiming pass or sell their farm, rather than that is due to the skill of the young farmer incoming.

Therefore, if this latter is the relevant *casual effect* there are strong policy implications aiming to solve the generational imbalance: it only to improve the competitiveness and productivity of farms that it attracts young farmers and consequently it has the positive feedback that younger ensure to farm performances (Carillo, 2012).

To discriminate between the different hypotheses, in this work I investigate the relationship between farm performance and young farmers on an Italian farms data, trying to show the main direction of this correlation. I use different econometric techniques applied on a panel data of the Farms Accounting Data Network (FADN) with aim, primarily, to investigate in detail this relationship, also showing possible changes in the different productive context and for dissimilar aspects of farm performance; secondly, to verify the presence of a *reverse causality*, which is determined by the top performing farms that encourage young entrepreneurs to get into the agricultural business.

More specifically, I used one equation verifying if the younger have, in average, higher education level and, contextually, I regressed another equation to test the superior management of more educated farmers, at the same conditions of firm characteristics and local specifics. To do this I use a Fixed-effects GLS estimator, with robust errors. In addition, with Probit regression on appropriate econometric specifications, I also test the hypothesis that, being equal education, young farmer produces improvements in various dimensions of farm performance and in the different agricultural sectors.

Finally, in trying to solve the problem of *endogeneity* of our variable of interest (age of farm), and then highlighting the "net effect" of the contribution of young farmers on the performance, I utilize a two-step instrumental variables technique, using as "instrument" the population structure of Italian municipalities.

The main results highlight a generally positive correlation between young entrepreneurs and farm performance, confirming the significant contribution of young people in the various aspects of the development and innovation of farms. In fact, also by using alternative measures of farm performance it would be shown that the change induced by the young people would be visible in almost all farm functions; however, when I control for the *endogeneity* of the age the relation changes of sign, becoming negative, showing that young age, at equal education, doesn't improve performance but rather that the top performing farms attract the best resources of the society.

The rest of the paper is organized as follows. I have used the second section to report the main

contributions of the empiric studies on this relationship, in the third section I have showed the econometric specifications and techniques utilized for may analysis, then in the fourth part I have discussed main results and, finally, the last section was addressed to conclusions.

## 2. Empirical background

The economic and political importance of the excessive aging of farmers has stimulated many researchers to deal with this issue. However, to my best knowledge, there are only a few analysis on Italian farms providing statistical evidence on the impact of farmers' age on farm performance and the few results do not clearly indicate the sign of this relationship.

Russo and Sabbatini (2001) examine the performance of over 58,000 farms of the Istat sample in 1998, and find a negative relationship between farmers' age and the average standard gross margin per hectare of utilized agricultural area (UAA). Similarly, Corsi (2009), using Istat census data on farm businesses operating in the Piedmont region in 2000, shows that the standard gross margin is negatively correlated with the age of the farmer. In the same vein is the paper of Mazzieri and Esposti (2005) on 786 commercial farms of the Marche region, included in the FADN sample in 2003. According to the authors, entrepreneurs aged under 35 manage farms that have the largest economic dimension; furthermore, they invest more in their businesses than their elder competitors. While Giarè and Vagnozzi (2012), exploiting the same FADN dataset but on a national scale and for the period 2008-2010, find that farms run by farmers over 40, on average, have a higher value added, with respect to farmers who are under 40. This difference in the results can be explained by the existence of a non linear relationship between the farmer's age and the performance of the firm. In this case the difference could not emerge clearly since results change according to which is the threshold age used to define young and old entrepreneurs. In more recent studies (Carillo, 2012; Carillo et al, 2013) it was found an inverted-U shaped relationship between the farm's gross production value and the age of farmers, whose peak it was around 40 years old, by confirming the existence of a non linear relationship between age and farm performance.

However, even in the presence of several studies on this theme, in Italy this relationship rarely was investigate in detail (for example in different productive contests and for various dimension of performance) and, above all, it was not used appropriate econometric techniques to exclude the *endogen effect*, so it remains a knowledge gap on an important phenomenon for the Italian agriculture.

As explained in the next section, in order to have a more complete tested hypothesis of the relevance of farmers' age on the economic farm performance in Italy, I use different econometric techniques and various specifications on panel data of FADN sample testing for some measures of farm performance, also controlling for the main direction of this relationship.

## 3. The empirical specifications and methodology

From a methodological point of view I have proceeded in the following way.

I first have used an equation (1) that had the logarithm of sales ( $\ln ProdV$ ) as dependent variable and the logarithm of age ( $\ln Age$ ) and its square ( $\ln Age^2$ ) as explanatory variables of interest. The rest of independent variables of this equation was relate to the agricultural area

in hectares ( $\ln UAA_{it}$ ) and annual work units employed in the farm ( $\ln Lab_{it}$ ), both taken in natural logarithm, to take account of the effects of inputs on production value and to show *ceteris paribus* the effect of our variable of interest. I also use, as independent variables, dummies for productive sectors ( $D_{ASector}$ ) and disadvantaged areas ( $D_{DisvaA}$ ), to keep account technological effects. These latter respectively have value equal 1 if farm is specialized in a specific sector and if farm is localized in disadvantaged area as defined by EU Directive (Dir.75/273 EEC). With the aim to consider the effects of time-invariant characteristics, such as geography, demographics and quality of institutions (that may be also correlated with the explanatory variables), I use the “Fixed-effects within” regression for panel data, with GLS estimator. Formally the specification is:

$$\ln ProdV_{it} = \alpha + \beta_1 \ln Age_{it} + \beta_2 \ln Age_{it}^2 + \beta_3 \ln UAA_{it} + \beta_4 \ln Lab_{it} + \beta_5 D_{DisvaA_{it}} + \beta_6 D_{ASector_{it}} + \varepsilon_i \quad (1)$$

Equation 1 has also been used to investigate the relation between the performance of farms and the farmers age in the different productive contests. To do this I have re-regressed the same equation for each agricultural sector, naturally without the dummy for sectors ( $D_{ASector}$ ).

In addition, in order to investigate the various components that could explain the observed superiority of the young farmer in the business management, I have tested the hypothesis that young people have, on average, an higher education level and, contextually, that higher education determines better farm performance. In this case I used the two following functional specifications. In the one I used as dependent variable the level of the farmers education, taken as a natural logarithm; as explanatory variables I have used the age and its square, also expressed in logarithm, and dummy for disadvantaged area, regressing also by fixed effects (2). The other one specification is the same of equation 1 with the addition of the level of farmer education among the explanatory variables, also taken in its natural logarithm, which allow us to test the contribution of education *at equal age* (3). Formally these two last specifications are the following:

$$\ln Edu_{it} = \alpha + \beta_1 \ln Age_{it} + \beta_2 \ln Age_{it}^2 + \beta_3 D_{DisvaA_{it}} + \varepsilon_i \quad (2)$$

$$\ln [\ln ProdV]_{it} = \alpha + \beta_1 [\ln Age]_{it} + \beta_2 [\ln Age]_{it}^2 + [\beta_3 \ln Edu]_{it} + \beta_4 \ln UAA \quad (3)$$

As I already said above, through the use of different measures of farm performance it was possible to see whether and to what extent the young farmer makes a specific contribution on the various fields of farms performance: more productive sectors, farm size, environmental friendly production, high quality of products, organizational and technological innovation, degree of integration of the supply chain and market approach.

By using the Probit regression, because the dichotomous dependent variable, I first tested the relation of young farmer and the probability of finding farms operating in sectors with more intensive production inputs. Specifically, I used the dummy with value equal 1 if farm is specialized in livestock or in horticulture and 0 otherwise ( $\ln Intens_{it}$ ). Moreover, because with the above equation 3 I verified that the “turning point” of U-shaped relation performance-age is around 42 years, I use as independent variable of interest a dummy, having value 1 if the farmer is less than 42 years ( $D_{42years_{it}}$ ) and 0 otherwise. The rest of independent variables are the same of the equation (3) without, of course, the dummies for sectors ( $D_{ASector_{it}}$ ) and including the regional dummies, to take account the fixed effects. The specification is:

$$\text{Prob}(\text{Intens}_{it}) = \alpha + \beta_1 D42years_{it} + \beta_2 \ln Edu_{it} + \beta_3 \ln UAA_{it} + \beta_4 \ln Lab_i + \beta_5 D_{Region_{it}} + \beta_6 D_{DisvaA_{it}} + \varepsilon_i \quad (4)$$

To also test if the young farmer, having a longer time horizon, guarantees long-term investments and greater farm size, in the equation (6) I use as a dependent variables the Utilized Agriculture Area (UAA), expressed in logarithm of hectares ( $\ln UAA_{it}$ ), as a proxy of farm size. The independent variables are the same of equation (4), naturally without the UAA and with the addition of dummy for sectors ( $D_{ASector_{it}}$ ). In this case, because the continuous dependent variable, I used “Fixed-effects within” regression, with GLS estimator. The specification is:

$$\ln UAA_{it} = \alpha + \beta_1 D42years_{it} + \beta_2 \ln Edu_{it} + \beta_3 \ln Lab_i + \beta_4 D_{Region_{it}} + \beta_5 D_{DisvaA_{it}} + \beta_6 D_{ASector_{it}} + \varepsilon_{it} \quad (5)$$

To test if the young farmer favors the introduction of a techniques that ensure high productive quality and environmental sustainability of production, a further regression was done, using as the dependent variable a dummy having value 1 if the farm adopts the organic technique and 0 otherwise ( $Biol_{it}$ ). In this case, because dichotomous independent variable, I use a Probit regression, utilizing as independent variables the same of equation 4 including the dummies for sectors ( $D_{ASector_{it}}$ ). The specification is the following:

$$\text{Prob}(Biol_{it}) = \alpha + \beta_1 D42years_{it} + \beta_2 \ln Edu_{it} + \beta_3 \ln UAA_{it} + \beta_4 \ln Lab_i + \beta_5 D_{Region_{it}} + \beta_6 D_{DisvaA_{it}} + \beta_7 D_{ASector_{it}} + \varepsilon_{it} \quad (6)$$

Once again, with the following equation (7) I have tested the hypothesis that the young farmer have also a superior sensitivity to innovations and greater openness to expand the boundaries of activities and the relationships with the final markets. For this aim I used as dependent variable a dummy “market approach” ( $Mappr_{it}$ ), that have value 1 if a diversified activity or a shorter path for the market are present in the farm (agro-tourism, direct sales, sale in cooperative). The independent variables are the same of equation (6). In this last case I also use a Probit regression because the dichotomous independent variable.

$$\text{Prob}(Mappr_{it}) = \alpha + \beta_1 D42years_{it} + \beta_2 \ln Edu_{it} + \beta_3 \ln UAA_{it} + \beta_4 \ln Lab_i + \beta_5 D_{Region_{it}} + \beta_6 D_{DisvaA_{it}} + \beta_7 D_{ASector_{it}} + \varepsilon_{it} \quad (7)$$

Finally, I used a two-step instrumental variables (IV regression) technique to verify if the direction of the relationship young-performance remains positive even after controlling for possible *endogeneity* of our variable of interest. Specifically, I regress the equation 3, replacing the variables farmer age and its square with the dummy  $D42years_{it}$ , using a two-step instrumental variables (8). As instrumental variable I used the ratio of the population aged up to 40 on the total of population residing in the Italian municipalities (on Istat Population Census data, 2011). Technically in the first stage I estimate the coefficient between the *rate of youth* in the municipalities and the probability of observing a *young farmer*, in the second stage I regress the equation 3 utilizing the coefficient of the *young farmer* estimated in the first stage.

$$\ln ProdV_{it} = \alpha + \beta_1 Prob42years_{it} + \beta_2 \ln Edu_{it} + \beta_3 \ln UAA_{it} + \beta_4 \ln Lab_i + \beta_5 D_{Region_{it}} + \beta_6 D_{DisvaA_{it}} + \beta_7 D_{ASector_{it}} + \varepsilon_{it} \quad (8)$$

All the models above specified were applied to an unbalanced panel data, which consists of a sample of about 11,000 Italian farms, containing economic and structural farm's information. This panel data was collected by the Italian Farm Accountancy Data Network<sup>1</sup> (FADN) on a representative sample of farms in the period 2008-2011. The sample is defined according three criteria of stratification: region, economic size and type of farming. The sampling methodology of FADN excludes the smallest farms, so the sample is not completely representative of the entire universe of farms over the country, but it allows us to analyze those operate in the most effective and efficient ways<sup>2</sup>.

#### 4. Results

The first I tested is the relationship between one measure of performance, the farm's production value, and the age of farmers, by using the equation above specified (1). As showed in the table 1, column 1, the results underline coefficients of age and of its square respectively positive and negative, which means that exist a non-monotonic inverted U-shaped relationship between the age of the farmer and performance. Specifically, utilizing the following formula you could calculate the turnaround in 42 years old.

$$\frac{\beta_1}{e \beta_2^*} \quad (9)$$

Trying to separate the different components of the *young effect* on farm performance I also test the correlation between the age and the level of farmer's education, verifying if it is confirmed the hypothesis that young people are more educated compared to older ones and if the young farmer, thanks to higher education, assures a better business management and upper performance for farm. As showed in the table 1, at column 2, there is a positive correlation between the young and education level, contextually it is showed, in the table 1 at column 3, that there is a positive correlation between higher education and farm performance. So it is possible to confirm that young farmer, among other intrinsic components, also assure higher farm performance *via* education. In addition, the results showed in the table 1, column 3, underline that young age, being equal education, have also a positive effect on the farm's operating results (up to 42 years), due evidently to other specific characteristics, such as a superior sensitivity to innovations, longer time horizon for investments, openness to friendly environmental techniques and "vigor of youth". So it was motivating to investigate on other possible ways by which the young farmers ensures a superior management and better performance.

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<sup>1</sup> The Farm Accountancy Data Network (FADN) is a European system of sample surveys that are run each year to collect structural and accountancy data of farms.

<sup>2</sup> According to Council Regulation (EC) No 1217/2009 of 30 November 2009 in order to be classified as commercial, a farm must exceed a minimum economic size that, because of the different farm structures across the European Union, is different for each Member State. In Italy, until the accounting year 2009 included, the threshold was 4 Economic Size Unit (ESU), given the amount of Standard Gross Margin (SGM), in turn obtained as the sum of the SGM of each agricultural activity in the farm. For the period 2001-2009 one ESU corresponds to 1,200 €. Starting from the year 2010 the economic dimension is expressed directly in euro of the Production Standard (PS), that is the sum of the standard value of production attributable to each activity in the farm.



Tab. 1 - Relationship between young farmer and farm performance

Variables	Model (1) $y = (\ln) \ln(ProdV_{it})$	Model (2) $y = (\ln) \ln(Edu_{it})$	Model (3) $y = (\ln) \ln(ProdV_{it})$
Logarithm of Age	1.429*** (0.54)	14.140*** (0.96)	1.252** (0.55)
Logarithm of Age squared	-0.190*** (0.07)	-1.910*** (0.12)	-0.167** (0.07)
Logarithm of Education			0.013* (0.01)
Logarithm of Utilized Agricultural Area in hectares	0.321*** (0.03)		0.320*** (0.03)
Logarithm of Units of Labor	0.204*** (0.01)		0.203*** (0.01)
Dummy for Disadvantaged Area	0.148*** (0.01)	0.077*** (0.00)	0.147*** (0.01)
With dummies for agricultural sectors	Yes		Yes
With regional fixed effects	Yes	Yes	Yes
Constant	6.964*** (1.08)	-23.830*** (1.89)	7.264*** (1.10)
Observations	44,645	44,705	44,645
R-squared within	0.071	0.102	0.071
R-squared between	0.3954	0.1377	0.3960
R-squared overall	0.3690	0.1334	0.3695
<i>Robust standard errors in Parenthesis. Significance levels: *** p&lt;0,01, ** p&lt;0,05, * p&lt;0,1.</i>			

As showed in the figure 2, focusing in the different productive contest, by re-regressed the equation (1) on farm grouping for their productive specialization, it emerges that young-performance relationship remains positive, although with some exceptions to the rule. This is true especially for some agricultural sectors, characterized by a more intensiveness in the use of productive inputs. In fact, as showed in the Table 3, column 1, it is possible to remark that the young farmers increases the probability of finding farms specialized in the most intensive productive sectors, such as livestock and horticulture.

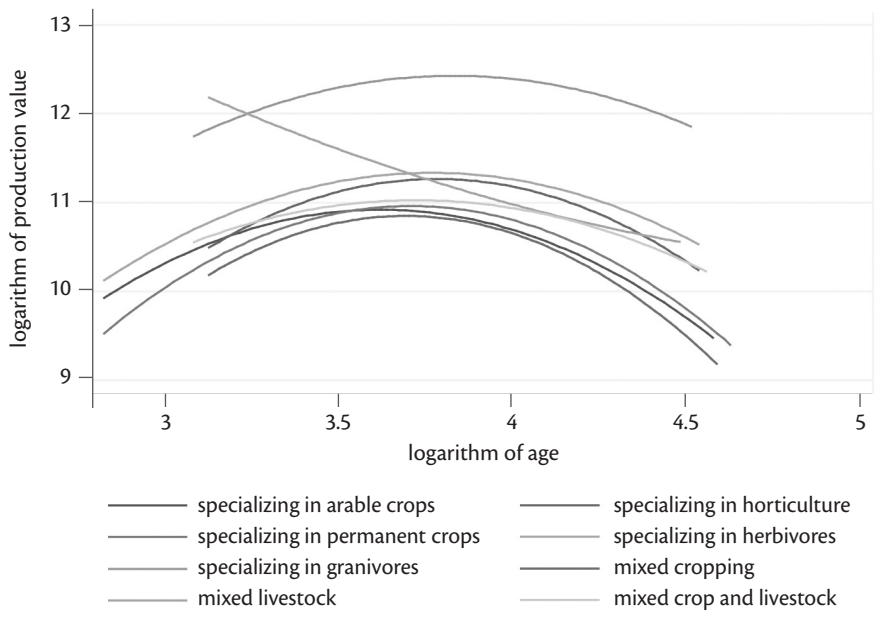
Also in the table 3 (columns 2, 3 and 4) it was reported the results of regressions with different proxy of farm performance, using the 5, 6 and 7 specifications indicated in the previous section.

Specifically, the “model 5” (table 3, column 2) is focused on the relation between young farmer and farm size, using as proxy the amount of hectares of utilized agricultural area (UAA). The results show that farmer aged up to 42 years increases the farm size of 2 percent.

Additionally, with the “model 6” (table 3, column 3) it was possible to point out that young farmer increases the probability of adopting techniques that ensure high quality of products and environmentally sustainable of productive processes.

Finally, with the “model 7” (table 3, column 4) we can see that the young-performance correlation remain positive even if the performance is measured as a better approach to the market.

Figure 2 - Relationship between younger farmer and farm performance in the productive sectors



Source: Elaboration INEA on FADN data

Tab. 3 - Relationship between young farmer and different proxies of farm performance

Variables	Model (4) $y =$ ( <i>Prob</i> )( <i>IntnsS<sub>it</sub></i> )	Model (5) $y =$ ( <i>ln</i> )( <i>UAA<sub>it</sub></i> )	Model (6) $y =$ ( <i>Prob Bio<sub>it</sub></i> )	Model (7) $y =$ ( <i>Prob Mapp<sub>it</sub></i> )
Dummy for 42 years old	0.167*** (0.02)	0.023** (0.01)	0.150*** (0.04)	0.095*** (0.02)
Logarithm of Education	-0.115*** (0.01)	0.010*** (0.004)	0.365*** (0.03)	0.103*** (0.01)
Logarithm of Utilized Agricultural Area	-0.074*** (0.01)		0.154*** (0.01)	-0.014* (0.01)
Logarithm of Units of Labor	0.567*** (0.01)	0.052*** (0.01)	-0.048** (0.02)	0.181*** (0.01)
Dummy for Disadvantaged Area	0.486*** (0.02)	-0.373*** (0.00)	0.247*** (0.03)	0.082*** (0.02)
With dummies for agricultural sectors		Yes	Yes	Yes
With regional fixed effects	Yes	Yes	Yes	Yes
Constant	0.284*** (0.07)	2.745*** (0.01)	-3.589*** (0.13)	-1.303*** (0.06)
Observations	44,656	44,656	44,656	44,656
Pseudo R-squared	0.167		0.142	0.121
R-squared within		0.014		
R-squared between		0.023		
R-squared overall		0.024		
Robust standard errors in Parenthesis. Significance levels: *** $p < 0,01$ , ** $p < 0,05$ , * $p < 0,1$ .				

In the table 4 are reported the latest estimates that I have done to solve a possible problem of *reverse causality* between the young farmer and farm performance. In particular, it was reported in the table the results of two regressions: the one is relate to the model 3 in which I used the observed age of farmer (with dummy equal 1 if farmer is less than 42 years) (table 4, column 1), the second is relates to regression 8, made trough the same equation but utilizing the prediction of “instrumented” young age. The results shown that: when I used the observed endogen variable “young” the relationship young-performance was positive, but if I use the prediction of the endogen variable the relationship changes of sign, showing that the relationship is bidirectional and that the “net effect” young-performance is negative. Contextually, as you can see in the table 4 the effect of higher education becomes stronger. As a consequence, the intuition highlighted above seems true, id est. that the *performing effect* of young farmer, at equal education, derives more at the ability of the elderly farmer, aiming pass or sell their farm, rather than the talent of the young farmer.

**Tab. 4 - Relationship between young farmer and farm performance with “Instrumental Variables 2stage regression”**

Variables	Model (8) $y = (ln) \ln(ProdV_{it})$	Model (9) $y = (ln) \ln(ProdV_{it})$
Dummy for 42 years old	0.061*** (0.01)	-8.980*** (2.64)
Logarithm of Education	0.101*** (0.01)	0.754*** (0.20)
Logarithm of Utilized Agricultural Area	0.345*** (0.01)	0.461*** (0.04)
Logarithm of Units of Labor	0.957*** (0.01)	0.926*** (0.04)
Dummy for Disadvantaged Area	-0.086*** (0.01)	0.080 (0.08)
Dummy for Plain Area	0.224*** (0.01)	0.275*** (0.07)
With dummies for agricultural sectors	Yes	Yes
With regional fixed effects	Yes	Yes
Constant	8.641*** (0.02)	7.952*** (0.24)
Observations	43,403	43,396
Robust standard errors in Parenthesis. Significance levels: *** $p < 0,01$ , ** $p < 0,05$ , * $p < 0,1$ .		

#### 4. Conclusions

The main results highlight a generally positive correlation between young entrepreneurs and farm performance, confirming the significant contribution of young people in the various aspects of the development and innovation of farms. In fact, there was evidenced a non-monotonic inverted U-shaped relationship between the age of the farmer and farm performance, whose peak is around 42 years. Also by using alternative measures of farm performance one might conclude that the change induced by the young people would be visible in almost all farm functions: the physical dimensions; the cultural mix preferring the technique that assure higher productivity, the productive quality and environmental sustainability; the boundaries of farm activities and the relationships with the final markets. Furthermore, it was been show that young people are, on average, more educated than older ones and that high education generates better economic returns to the farms. However, when we control for the *endogeneity* of the age the sign of the relationship young-performance changes, becoming negative, and the measure of coefficient of the relation education-performance increase.

Then, in summary, we could state that young age *per se* doesn't improve performance, but they are the more educated younger farmer who have high impact on the farm performance. The main policy implications are, then, to aim improve the agricultural sector it is important to

attract the best resources of society in the conduct of farms, which is not simply related to the “vigor of youth” but to managerial skills and talent also acquired through formal education.

## REFERENCES

- Carillo F. (2012), La Trasmissione Intergenerazionale nelle Imprese Agricole, *Agrimarcheuropa*, 2.
- Carillo F. (2013). I giovani e il loro apporto in capitale umano nella conduzione delle aziende agricole: evidenze sul caso italiano. *Tesi di dottorato Università Federico II Napoli*.
- Carillo F. (2014). La Trasmissione Intergenerazionale delle Imprese Agricole: Determinanti ed Effetti, *QA Rivista dell'Associazione Rossi Doria*, 4, (169-199)
- Carillo F., Carillo M.R., Venittelli T., & Zazzaro A. (2013). Aging and succession on Italian farms. *International Agricultural Policy, PAGRI/IAP*, 1 (39-55).
- Cersosimo D. (2012), «I giovani agricoltori tra famiglia e innovazioni aziendali», *Agriregionieuropa*, 31, pp. 69-73.
- Corsi A. (2009), Giovani e Capitale Umano in Agricoltura, *Agriregionieuropa*, Anno 16, 5.
- Giare F., Vagnozzi A. (2012), Capitale Umano e Cultura d'Impresa, *Agriregionieuropa*, Anno 8, 31.
- Kimhi A., Kislev Y., Arbel S. (1995), Intergenerational Succession in Israeli Family Farms: 1971-1988, in Y. Kislev, A. Kimhi., R. Lopez, *Intergenerational Transfers of Farmers in Different Institutional Environments*. Unpublished BARD Final Report, Project No. IS-1845-90, 1995, pp. 275-289.
- Kimura S., Le Thi C. (2013). Cross Country Analysis of Farm Economic Performance, *OECD Food Agriculture and Fisheries Papers 60*, OECD Publishing.
- Lobley M., Baker J.R., Whitehead I. (2010), «Farm Succession and Retirement: Some International Comparisons», *Journal of Agriculture, Food Systems and Community Development*, 1, 1, pp. 49-64.
- Mazzieri A., Esposti R. (2005), Quanto Sono Diverse le Imprese Agricole “Giovani”? Un’Analisi della Rica nelle Marche, *Agriregionieuropa*, Anno I, 2.
- Potter C., Lobley M. (1996), Unbroken Threads? Succession and its Effects on Family Farms in Britain, *Sociologia Ruralis*, n. 36.
- Russo C., Sabbatini M. (2001). Ricambio Generazionale e Strategie Produttive nelle Aziende Agricole a Conduzione Diretta: Alcune Considerazioni sulla Base di un’Analisi Tipologica, *Rivista di Economia Agraria*, Vol. 56, 1, (3-26).
- Weiss C. (1999). Farm Growth and Survival: Econometric Evidence for Individual Farms in Upper Austria, *American Journal of Agricultural Economics*, 81, (103-116).



# THE ROLE OF CULINARY PROGRAMS IN THE EMERGENCY OF “DISTINCT” CONSUMERS

JEL classification: ?????????

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**Abstract.** Growing literature on the relevance of text and artifacts such as media and magazine has revealed the role of culinary programs and celebrity chefs in stimulating changing in patterns of consumption. It has been noticed that the active work of chefs through TV program, their importance in addressing global consumer culture and in disseminating attractive models for consumption behavior has developed in recent years. The paper underlines the role played from both media and celebrity chefs in influencing consumer behavior and transition in food habits. More precisely, by putting forward an

empirical test, we try to emphasize the effectiveness of TV culinary programs in determining Veblen's processes of emulation and Bourdieu's “distinct” food attitudes. In particular, by referring to Bourdieu's concept of distinction, we investigate on processes of modification and transition in food habits. The results confirm relevant differences between consumers watching culinary programs and other consumers in performing different purchasing and consumer aptitudes.

Keywords: culinary programs, distinction, food habits

## Introduction

The paper is concerned with the role of celebrity chef and culinary programs in modifying purchasing and consumer behaviors. The article aims to test the influence of culinary programs in the emergence of distinct consumers. More precisely, the effectiveness of TV culinary programs in determining Veblen's processes of emulation and Bourdieu's “distinct” food attitudes are the objects of our paper. Therefore, our analysis, instead of considering the two perspectives as opposite, integrates the contribution from the institutional school of Veblen (1899) and the sociological analysis of Bourdieu (1984). In particular, referring to Veblen's concept of emulation and to Bourdieu's idea of *distinction*, we investigate on processes of modification and transition in food habits. Finally, by making reference to Baudrillard's (1998) analysis, we study the influence of media on consumers' behavior. Growing literature on the relevance of

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text and artifacts such as media and magazine has revealed the role of culinary programs and celebrity chefs in stimulating changing in patterns of consumption. Literature has underlined the active work of chefs through Tv programs in addressing global consumer culture and in disseminating attractive models for consumption behavior. In this paper we will try to empirically test this trend. Therefore, after a brief theoretical background, the article provides an empirical test on the influence of culinary programs and celebrity chefs on purchasing behavior of a random sample of consumers.

## **Theoretical background**

According to Arnould (2010), consumer culture is influenced by various actors. Among them, a relevant role has been taking by cultural intermediaries, like movie and television stars, celebrity chefs, politicians, etc. This position fits in the institutional framework of consumer's analysis which investigates on institutional selection by taking into account the relevance of social variables. Large part of literature has underlined the importance of social variables in influencing consumer's perception, attitudes and purchasing behavior. In this context, different theoretical perspectives are considered, referring to both institutional and sociological approaches to consumption. While the former looks into Veblen's processes of emulation the latter provides for two sociological approaches that refers to Bourdieu's (1979) concept of *distinction* and to Baudrillard's (1968; 1970) “neo-differentiationist” analysis concerning the role of media in influencing groups of consumers.

Starting from institutional theory, according to Veblen (1899), “*institutions are prevalent habits of thought with respect to particular relations and particular functions of the individual and of the community*”. Hodgson, one of the most influential institutional economists, pointed out the idea of institutions as “*durable systems of established and embedded social rules that structure social interactions*” (Hodgson, 2004, p. 424). According to the Veblenian view, he developed an evolutionary concept of human agency (Hodgson, 2007a), where institutions are efficient factors of selection (Parada, 2001). The mechanism through which institutions influence human behavior is well explained by Hodgson through the concept of *reconstitutive downward effect*<sup>1</sup>. He does not support the hypothesis that social forces can modify human and physical activity at individual level. He believes that there are not magic forces that alter human behavior: *What have to be examined, I argued, are the social and psychological mechanisms and constraints leading to such changes of preference, disposition or mentality* (Hodgson, 2004). Institutional theories have influenced the analysis of consumer behavior: Veblen's contribution to the theories of consumption can be synthesized in the “biting” concept of conspicuous consumption, a process of keeping up with the Joneses on behalf of consumers of lower social classes. As a matter of fact, due to “trickle down” effects each social class tries to emulate consumption of upper classes (Trigg, 20001).

In this paper we do not focus on the satirical aspects of Veblen's contribution (Tilman, 2004), but on a key concept that the Author emphasizes in order to describe social processes of consumption: emulation<sup>2</sup>. According to Campbell (1995), *Conspicuous consumption is that con-*

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<sup>1</sup> The original Hodgson's quotation is *reconstitutive downward causation*; however, term causation has been recently replaced by effect; see Author's website: <http://www.geoffrey-hodgson.info/downward-causation.htm>.

<sup>2</sup> Emulation is considered as the primary result of ownership (Guimaraes *et al.*, 2010)



duct which arises out of the motive of emulation, which is assimilated by Veblen as a pervading trait the human nature. The majority of literature with regard to Veblen concern about the relevance of emulation to describe conspicuous consumption: *The motive that lies at the root of ownership is emulation.... The possession of wealth confers honor; it is an invidious distinction* (Weber, 2014; p.20-21). On the other side, by following Trigg (2001), Veblenian perspective could not be limited just to luxury goods, but it may be extended and generalized.

Through the concept of habits, the French sociologist Bourdieu builds a bridge with the Veblenian tradition through institutional selection of consumption habits. Agency and structures are strictly linked in the analysis of both authors, and consolidate the institutional perspective of individual behavior, well explained through the notion of *downward causation* (Hodgson, 2004). Consequently, the contribution of Bourdieu offers an interesting development of the theories of conspicuous consumption (Trigg, 2001). Key concepts of Bourdieu's analysis are habitus and distinction (Bourdieu, 1984a): habitus can be defined as a set of disposal, a framework of action which creates the conditions for distinguishing the human behavior, through the creation of social status. More precisely, the *sociological habitus is described as a system of lasting, transposable dispositions* (Bourdieu, 1977, p.82) influencing the generation and the organization of practices and representations (Trigg, 2001). Moreover, habitus is the main tool to create social differentiation and status (Brubaker, 1993), through processes of social distinction. Unlike Veblen's conspicuous consumption, where ostentation is the “rule of thumb” of the upper social classes, in Bourdieu's analysis distinction is not necessarily a goal, but it is the process through which differentiation towards other segments of the society takes place either voluntarily or not (Bourdieu, 1984b). Differentiation may originate from (cultural) practices, as it will be shown ahead in testing the influence of the media on the consumer behavior (Allen, Anderson, 1994).

In our opinion, the Bourdieu's idea of distinction compares the French sociological approach to the institutional one. More precisely, the institutional selection could be a part of the distinction process through the concept of emergent properties (Hodgson, 2004; 1998). As a matter of fact “novel properties may emerge when entities interact, properties that are not possessed by the entities taken in isolation” (Hodgson, 2007b, p.220). Therefore, processes of distinction can be the result of a mechanism of Darwinian institutional selection, whose consequences are emergent new institutions.

According to Baudrillard's (1968) neo-differentiation perspective, distinction processes are mediated through the control of the media. Along with the Veblenian tradition of conspicuous consumption, Baudrillard (1998) underlines the sign-value of a consumption activity (Firat et al., 2013). Key drivers of this consumer society are mass-media that shape consumers' attitudes (Baudrillard, 1968). As a matter of fact, the French sociologist asserts that we do not consume commodities but meanings and the media is creator of meanings (Baudrillard, 1998). Food can be considered as a relevant means to mark distinction between different social groups of consumers. On the basis of these theoretical perspectives, our paper aims to analyze the importance of celebrity chefs in the emergence of “distinguished” groups of consumers. In particular, the purpose of the article is to test the difference in term of consumer behavior between two groups of individuals, divided up referring to the habits to watch culinary TV programs conducted by celebrity chefs. Apparently, celebrity chefs have added up to an evolution in the patterns of eating and drinking habits in numerous parts of the world. Hence, the empirical analyses have focused on the importance of TV programs and celebrity chefs in activating imitation (Henderson, 2011). Nevertheless, quantitative analyses have been also carried out,

in order to verify the emergency of a distinction process. Therefore, our paper tries to fill this gap in literature, through testing differences in consumer behavior between two groups of consumers clustered according to the habits in watching culinary TV programs conducted by celebrity chefs.

## **Materials and methods**

Many empirical analyses have focused on the importance of TV programs and celebrity chefs in activating imitation, in sustaining food domain. However, only a few quantitative analyses have been carried out, in order to verify the emergency of a “distinction” process in the aforementioned sense. The purpose of our analysis is to point out possible different behaviour between those who follow TV programme and website on food and recipes and those who are not keen on that topic respect their attitude and believe in purchasing food products.

The dataset counts 866 observations obtained in 2013 by conducting a survey through CAWI methods. 652 questionnaires (75,3%) are considered for the empirical analysis. The questionnaire is structured around three pillars: the first one includes general question on socioeconomic characteristics of the respondents. The second concerns their habits in either watching Tv culinary programs or buying specialized magazines, or attending training culinary course. The third investigates on probable changes in purchasing and consumer behaviour as a consequence of the culinary programs. The respondents come from all over Italy. In particular, the country was divided in five different geographical subdivisions such as Nord-West, Nord-Eastern, Centre, South and Islands that excluding islands, registered a quite equilibrate distribution in number of participants.

A multivariate analysis has been conducted in order to:

- inspecting eventual correspondences between the variables extracted from the questionnaire (multiple correspondence analysis);
- classifying groups of homogeneous consumers on the basis of their propensity of watching Tv culinary programs (cluster analysis).

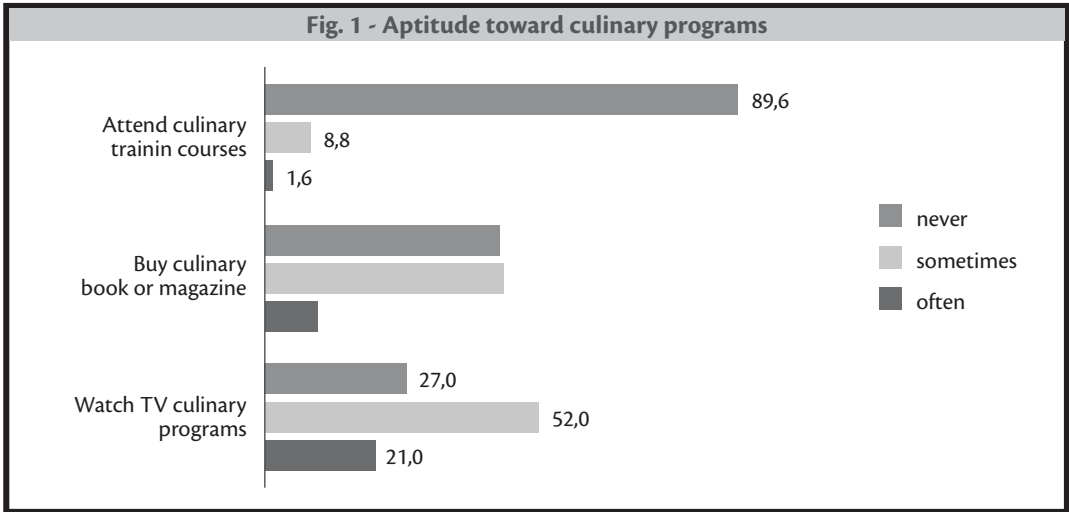
The active variables used for the analysis are classified as follows:

Variables	Categories of variables
Time spent on cooking	3
Eating at the restaurant	3
Purchase of convenience food	3
Attention toward quality	3
Attention toward price	3
Eating in high category restaurants	3
Purchase of products with geographical indications	3
Testing the origin of the products	3
Visiting the areas of production	3
Purchase of organic products	3
Higher knowledge about the characteristics of the products	3
Watching Tv culinary program	4
Purchase of culinary books/magazines	4
Participation to culinary training courses	4
Higher knowledge about the quality of products as a consequence of culinary programs/magazine/courses	3
Higher knowledge about typical products as a consequence of culinary programs/magazine/courses	3
Higher attendance of restaurants as a consequence of culinary programs/magazine/courses	3
Higher attendance of restaurants as a consequence of culinary programs/magazine/courses	3
Effects of culinary programs/magazine/courses	3
Family composition	6
Rate of instruction	7
Profession	7
Family income	7
Sex and age	9

## Results

### *Descriptive analysis*

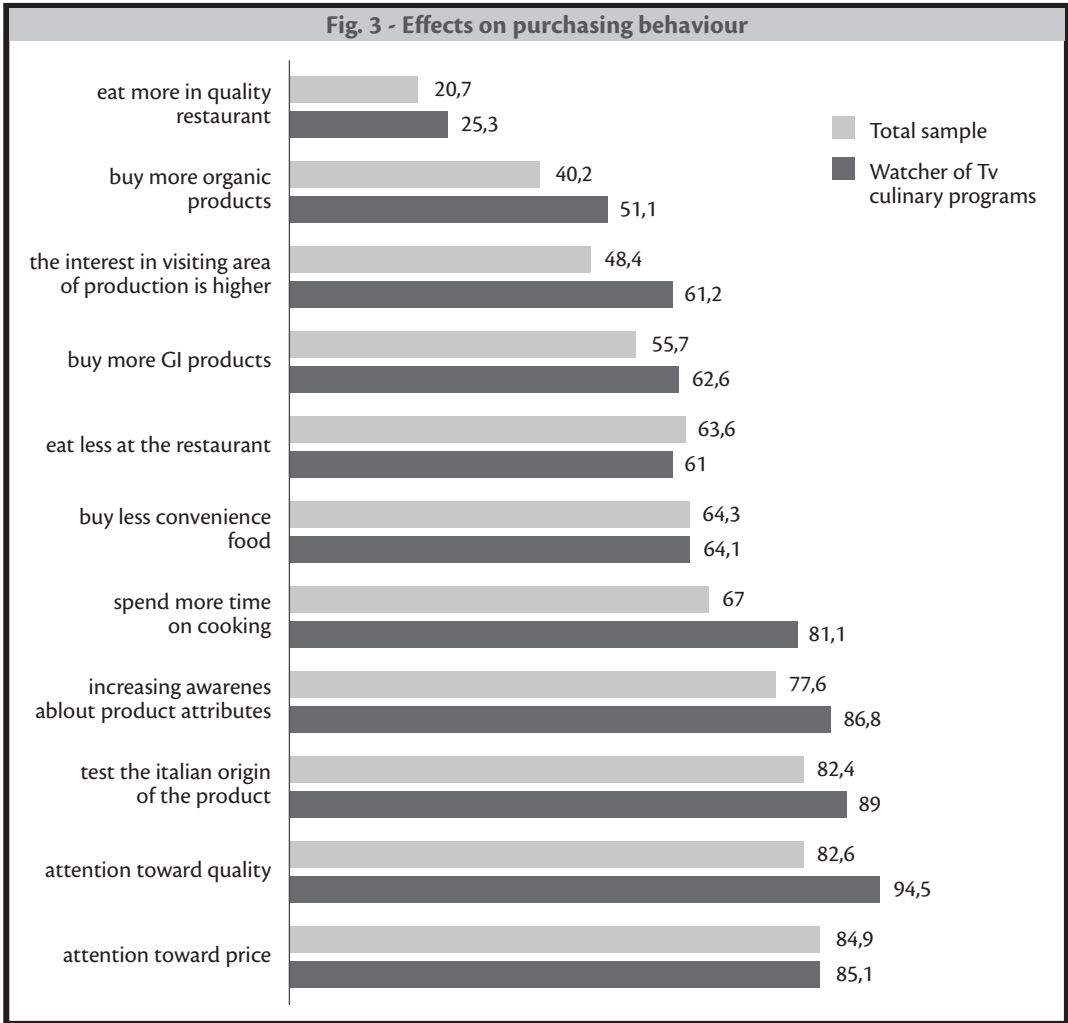
Figure 1 illustrates the distribution (%) of purchasing responsible in relation to culinary programs, cooking books or magazines and culinary training course. The first impression is that many people attend culinary programs and modify their consumer and purchasing behaviour. The results, in fact, show that 21% of the purchasing responsible often watches Tv culinary programs and another 52% sometimes is interested in watching them. A discrete attention is devoted to specialised magazines, while few interviewees declare interest in culinary training course.



At this point, it could be of interest looking into how watching Tv culinary programs affect purchasing behaviour. Figure 2 points out how differences emerge between the watchers of Tv programs and the others. More than a half of the sample declares to be influenced and to have modified purchasing behaviour as a consequence of the culinary program.



A confirmation of this trend on purchasing and consumer behaviour is observed from figure 3 which evidences differences between watchers of Tv culinary program and the total sample. If no differences emerge concerning the high attention towards price (main driver of purchasing change), is possible to observe high gaps in relation to quality aspects, on the propensity to visit area of origin of the products and on the purchase of products with geographical indications or organic products. Furthermore, the watchers of culinary programs spend more time on cooking.



### *Multivariate analysis*

The following analysis aims to aggregate homogeneous groups of consumers on the basis of their attitude towards celebrity chefs and culinary programs (books, magazines). To this purpose, multiple correspondence and

Multiple correspondence analyses has permitted to extract 4 clearly identifiable factors, which absorb 20.25% of the total variance. The factors have been defined as follows:

1. first factor (7.78% of the total variance) represents eventual impacts stemming from culinary Tv programs/books/magazine/training courses. On one hand, it emerged positive effects in terms of higher propensity toward either purchase quality products, visiting areas of production, etc., on the other hand, no effect occurs;
2. second factor (4.89%) concerns socio-demographical characteristics, by comparing elderly people, located in the mature-old phase (retired or worker) of life cycle and younger one;
3. third factor (3.88%) is related to purchasing behaviour: higher propensity to visit areas of

production and, in general, higher attention toward quality, no attention toward area of production and quality in general are the observations

- the fourth factor (3.70%) enlightens the propensity (high/low) to go out to restaurants as the consequence of culinary programs/book/training courses.

On the basis of the previous correspondence analysis, the respondents were aggregated in homogeneous groups, through a cluster analysis. Three clusters have been extracted, which present clear characteristics that differentiate people watching culinary programs (or buy magazines or attend training course) from the other consumers. Table 1 illustrates the percentage distribution of the sample among the three clusters.

Tab. 1 - Distribution of respondents in the three clusters		
	n.	%
cluster 1	251	38,5
cluster 2	45	6,9
cluster 3	356	54,6
	652	100,0

Cluster I - The first cluster involves 38,5% of the total sample and is characterised by the complete absence of influence of the culinary programs/magazines/courses on purchasing behaviour. The consumers of this group live in families with children, are in their young-mature phase of life cycle and belong to average-high family income. Moreover, these individuals neither watch Tv culinary program nor buy specialized books or magazines, and have not attended culinary training courses. The cluster is typified by the complete absence toward the key-variables, such as quality orientation, attention toward the origin of the products. Therefore, this cluster identifies consumers being **indifferent to Tv culinary programs or quality variables**.

Cluster 2 - The second cluster includes only 45 (7%) retired consumers, whose families are made up of elderly couples without children and high income. They neither watch culinary programs nor buy magazines. However, because their privileged economic conditions they pay attention on quality of food (with the exclusion of organic products) and choose high category restaurants. Hence, the group of consumers can be labelled as **indifferent toward culinary programs or magazines, but quality oriented**.

Cluster 3 - The third cluster is the most important since it includes more than half of respondents (54,6%). A positive attitude in watching Tv culinary programs, buying specialized magazines, books and, sometimes, attending training culinary courses are the key features to describe this group. The impact of culinary program is quite evident: these consumers declare an upgrading of knowledge concerning food quality and product characteristics and show high propensity to visit the areas of production of the consumed products. In addition, origin of products is a key-variable of their purchasing behaviour; thus, they buy more products signed with a geographical indication (protected designation of origin, protected geographical indication). Moreover, as a consequence of the culinary programs, they spend more time cooking and eating in high category restaurants, even though they declare an average income. More than half



chefs through Tv programs, books, magazines, courses supports the Veblenian perspective. This perspective is not confirmed in its strict version but in the sense that the attempt to emulate celebrity chefs engenders a process of institutional selection through which higher attention toward quality, origin of food and ingredients of the products emerge. Therefore, by following Trigg’s analysis (2001) the application of Veblen’s analysis of conspicuous consumption is not limited to just luxury goods but it could be extended to all purchased goods. In this process, Baudrillard underlines the influence of media in shaping consumers’ aptitudes and in inducing novel properties (Hodgson, 2007b). These new properties foster processes of distinction in the sense clearly expressed by Bourdieu. Our analysis has showed Bourdieu’s processes of distinction in terms of homogeneous groups of consumers with specific characteristics: culinary Tv programs, books or magazine engendered different habitus; they have stimulated certain predispositions, such as higher attention toward origin products, quality products, to visit areas of production. Moreover, according to the contribution of the French sociologist the role of cultural capital seems relevant in performing distinction but differently from Bourdieu, economic capital does not influence these aptitudes. Another interesting element of reflection comes from the high share of consumers influenced by the celebrity chefs that represent the highest percentage (more than half of consumers belonging to the third cluster). This demonstrates how celebrity chefs could be defined as expanding empires (Henderson, 2011).

Therefore, even though this paper has to be considered as a first attempt to empirically analyze the impact of culinary programs/books/magazines, and it needs further empirical tests, our opinion is that their influence seems relevant and may modify knowledge and aptitude toward quality perception and purchasing behavior.

## REFERENCES

- Allen D.E., Anderson, P.F. (1994). Consumption and social stratification: Bourdieu’s Distinction. *Advances in Consumer Research*, 21(1): 70-74.
- Arnould E. (2010). Society, Culture, and Global Consumer Culture, in Sheth J. and Maholtra N. (eds.), *Encyclopedia of International Marketing*, Wiley.
- Baudrillard J. (1998). *The Consumer Society: Myths and Structures*. London: Sage
- Baudrillard J. (1968). *Le système des objets*, Paris, Gallimard.
- Bourdieu P. (1984a). *Distinction: A Social Critique of the Judgment of Taste*. Cambridge, MA: Harvard University Press.
- Bourdieu P. (1984b). Espace social et genèse des “classes. *Actes de la recherché en science sociales*, 52-53: 3-14.
- Bourdieu P. (1977). *Outline of a theory of practice*. R. Nice (trans.), London: Cambridge University Press.
- Brubaker R. (1993). Social theory as habitus, in Calhoun C.J., Lipuma E., Postone M. (eds.): *Bourdieu: critical perspectives*, University of Chicago Press, pp. 212-234
- Campbell, C. (1995). Conspicuous confusion? A critique of Veblen’s theory of conspicuous consumption, *Sociological theory*, 13(1): 37-47.
- Ellwood S., Mitchell, R. (2013). Food Media and the Tension Between Access and Excess, proceedings of the conference: *Foodscapes*, Seggau-Castle, Austria, 22-25 September.
- Firat A., Kutucuoglu K.Y., Arikan Saltik, I., Tuncel, O. (2013). Consumption, consumer culture and consumer society, *Journal of Community Positive Practices*, XIII(1): 182-203
- Guimaraes I., Oliveira E., Rocha, M. (2010). Conspicuous distinction: a reading of Veblen and Bordieu, Working paper Universidade Católica Portuguesa, n. 3.
- Henderson J.C. (2011). Celebrity chefs: expanding empires, *British food journal*, 113(5): 613-624.



- Hodgson G.M. (2007a). What are institutions?, *Journal of economic issues*, Vol. XL(1): 1-25.
- Hodgson, G.M. (2007b). Meanings of methodological individualism, *Journal of Economic Methodology*, 14(2): 211-226.
- Hodgson G.M. (2004). *The Evolution of Institutional Economics: Agency, Structure and Darwinism in American Institutionalism*, London, Routledge
- Hodgson G.M. (1998). On the evolution of Thorstein Veblen’s evolutionary economics, *Cambridge Journal of Economics*, 22: 415-431
- Parada J.J. (2001). Original institutional economics: an agenda for 21<sup>st</sup> century?, *Oeconomicus*, V: 46-60.
- Stringfellow L., MacLaren A., Maclean M., O’Gorman K. (2013). Conceptualizing taste: food, culture and celebrities, *Tourist management*, 37: 77-85.
- Trigg, A.B. (2001). Veblen, Bourdieu and conspicuous consumption, *Journal of economic issues*, XXXV(1): 99-115
- Veblen T. (1989). *The theory of leisure class*, New Brunswick, New Jersey, Transaction Publishers, 1898, reprinted in 1989.
- Weber C. (2014). *The thinning of Veblen’s “conspicuous consumption” in the modern language of economics*.  
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