

## **Policy evaluation through Farm Statistics: the case of the Italian Farm Accountancy Data Network (RICA)**

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### ABSTRACT

Italian General Census of Agricultural Holdings covers a limited set of information, mostly structural ones, and is a 10-years survey (with other limited-in-scope surveys updating some data every 2 years). Yearly Italian Farm Accountancy Data Network (also named RICA) covers instead a more comprehensive range of farm data, including detailed livestock and crop production and costs, and typology and amount of grants and subsidies.

Currently, RICA fulfils both statistical needs for National Accounts and economic requirements for accountancy rules. Results are extended to the universe of Italian farms, thanks to the sample selection methodology.

### INTRODUCTION

Italian Farm Accountancy Data Network (RICA) is a yearly survey implementing the more limited-in-scope Italian General Census for Agricultural Holdings (a 10-years survey with limited updating every 2 years). Sample selection provides a quick extension of RICA's output variables to the universe of Italian farms.

According to its three main features (strict periodicity, comprehensive set of data, extensibility of results to the universe) RICA is a powerful tool used for both micro and macro purposes, fulfilling farmers' accountancy needs as well as public sector statistical exigencies for National Accounts or policy design and evaluation

The paper, after introducing the survey and its output data, will present RICA 's two main macroeconomic applications: use in value added calculations for National Accounts and in EU Rural Development policy evaluation, the last one declined in its three remarkable cases of context description, agri-environmental policy evaluation and the economic justification of subsidies.

After an indication of RICA's limits in its current use, a brief conclusion will stress the opportunity to adopt RICA's methodology especially for developing countries, where economic and organizational hurdles may prevent from a general census to be held with affordable and updated results.

## 1. THE ITALIAN FARM ACCOUNTANCY DATA NETWORK: ITS COMPETITIVE ADVANTAGES

The Italian Farm Accountancy Data Network was set up in 1965 following a EU regulation (N° 79/65) establishing a common framework of principles and organizational directives for member states. Due to strict regulations, data collecting is harmonized in the whole European Union, resulting in RICA being a source of microeconomic data to feed in a European database. Such database is then queried to get appropriate responses to EU policy decisions.

Thus, from its very beginning RICA was a sample survey devoted to get updated farm data to accomplish a twofold task, namely the availability of results for micro and macro purposes. Every farmer joining the RICA, in fact, has an irreplaceable tool for farm management, while policy makers experience an immediate answer to their statistical needs.

Moreover, as a consequence of its design, RICA may accomplish a series of tasks better than a general census of agricultural holdings, as explained below:

- ❖ RICA's observation field is limited to those farms reaching a minimum threshold of economic dimension, while the Italian general census covers every kind of farms - even small market gardens- whose consideration is not influential in tailoring policy decisions;
- ❖ based on a sample methodology, RICA isn't an expensive and time-consuming survey as a census is;
- ❖ RICA's data quality and reliability are high, as sample design allows the extension of results to the universe of farms;
- ❖ RICA's yearly periodicity guarantees a work-in-progress monitoring for crop and livestock production and costs, a goal unsatisfied by a general census, whose data traditionally cover only a few variables on a one-time scale (the Italian census is a 10-years survey, with limited updating every 2 years). In addition, RICA is an irreplaceable tool for result-based monitoring where availability of detailed and updated information on fund allocation is a must, for example in the case of EU legislation on Rural Development;
- ❖ data resulting from RICA's larger set of information incorporate both "traditional" productivity factors and new ones (i.e. those deriving from landscape, such as rural tourism). Such feature allows RICA users to take the pace of current developments in agricultural trends;
- ❖ RICA's fine tuning is simpler, due to the frequency of the survey.

Main advantages on a macro scale shouldn't shadow efficiency gains provided –on a micro level- to the farmer. Availability of accountancy data, for example, is used to meet legislation requirements for a detailed balance sheet and to calibrate management decisions. Moreover, sector's average results help the farmer to define trends affecting his business, strategically positioning his farm in accordance with. The possibility for feedback-driven amendments to the farmer's decisions is also open.

Finally, RICA accomplishes with the expectations of users other than the farmer or the public sector. Investors, for example, rely on a complete set of financial information to drive their choices, while researchers draw from RICA's database to analyse current trends or to predict future ones.

## 2. RICA'S METHODOLOGY

RICA's methodology has been continuously improved since its appearance in 1965, resulting in Italy as the first country in EU 27 member countries as number of farms involved in the survey. EU rules on designing RICA's sample and enforcing the survey, in fact, allow member states a certain degree of discretionary choices.

In Italy, for example, there's a legal obligation for private subjects to answer to statistical surveys, with no remuneration due.

As a second element, RICA's on-field data collecting is carried out by specialised operators, often belonging to farmers' associations, with two positive consequences. The first one deals with the use of technical staff in the first, important step of data collecting, the second one is farmer's improved acceptance of the survey if conducted by people belonging to category associations.

Finally, a third characterization of the Italian experience is the use of a set of proprietary software in data management. Specifically designed software is used for data collecting, aggregation and quality controls: a complete suite is developed and updated by the Italian National Institute of Agricultural Economics (INEA), the public body entrusted of RICA's management and it's free distributed to those involved in the survey.

### 2.a SAMPLE DESIGN

RICA's sample design aims to assure several tasks:

- data output for National accounts;
- a high level of statistical significance, with a sample error not above 5%;
- a sample size that could minimize survey costs and statistical bias.

The sample is designed from the universe of Italian Farms as resulting from the Italian Agriculture General Census of 2000 as updated in 2005 (the last one available). According to EU rules, the minimum size allowed is the one corresponding to an economic value of output of € 4,800 per year per farm.

Farm selection is developed according to three variables of stratification: geographical location, type of farming and economic dimension. A three-dimensional matrix is produced as a result, with cells derived from the intersection of the three variables, to assure a theoretical representation of the universe as a whole.

Clustering the three variables, empty *strata* are eliminated or aggregated if similar with other presenting few farms. To allocate sample farms in the strata, three strategic variables are taken into consideration: Standard Gross Margin, Gross Output at Base Price, Level of Costs. Standard Gross Margin, in particular, is the concept used to determine the economic size of farm: the SGM of a crop or livestock item is the value of output from one hectare or from one animal less the specific cost of inputs required to produce that output.

For each region all crop and livestock items are accorded a SGM. Inea calculates the SGMs on the basis of empirical data collected from farms. To avoid bias caused by fluctuations, e.g. in production (due to bad weather) or in input/output prices, three year averages are taken. SGMs are expressed in European Currency (€) and are also used in the Farm Structure Survey organised by Eurostat and in the general census.

The level of precision requested for the three strategic variables is set in terms of coefficient of variation (CV) at two different geographical stages: Italy and regions. Sample size is derived

using the coefficients of variation set above with a minimum sample size of 5 farms for single stratum.

Sample allocation for every stratum is obtained using both an extension of Neyman's theorem for multiple variables and a generalization of Bethel's one: the more homogeneous a stratum is, the more number of farms are needed to get a representative sample.

Farm selection is equiprobabilistic: for every stratum, farm selection from the universe is random, but those farms refusing to take part to the survey or those lacking in accountancy data have to be substituted. Anyway, according to specific EU rules, geographical representativeness is a must.

The procedure assures a comprehensive range of accounting data for the Italian farms and, above all, the possibility to extend sample results to the universe: for every farm belonging to a single stratum, a coefficient of ponderation is calculated as the reciprocal of sample ratio.

Sample design is adjusted every year: anyway, the need to develop historical series urges researchers to prefer farms surveyed in the past, given any other circumstance. As a matter of fact, 77% of the selected farms had taken part to the RICA in previous years.

## 2.b THE SURVEY AND ITS OUTPUT

On field survey is put into practice by specialised operators, mostly belonging to farmers' associations. Inea is responsible for the accounters' training, with periodical learning session to introduce organizational innovations. In addition, accounting software new versions are continuously uploaded on dedicated sites. Contracting with the technicians is arranged by INEA's regional Offices, which is an organizational solution that proves more efficient due to territorial Offices' better knowledge of local realities.

From an operative point of view, the technicians interview the farmers and feed in the accounting software provided: later on, they forward their data to the regional Office they make reference to, where a first step of quality control is undertaken. The procedure ends with the regional Offices passing the data to the Headquarters in Rome, where final quality controls and data handling are realised.

Data management aims at a large set of variables as output, in the form of aggregated figures like value added, gross margins (calculated at a farm level but also with reference to a single crop or livestock), amount of subsidies, gross and net income, etc.. In addition, usual economic indicators like ROE (Return on Equity), ROI (Return on Investments) and ROS (Return on Sales)<sup>1</sup> are calculated, together with agricultural specific indexes like those including labour input, utilized agricultural area, livestock units.

Moreover, accounting standards in Italy require a detailed balance sheet (including a *Profit & loss account* and an *Asset & liabilities balance sheet*) whose items are prepared for a single farm and then territorially aggregated into groups of farms. Starting from these items, another balance sheet is derived to better fit the analytical requirements of the agricultural sector. Moreover, an analytic balance sheet is the key tool in managing crops and livestock whose productive life lasts more than a single accounting period: stocks and breeding livestock help avoiding double counting or problems related to their inclusion in some aggregate or other.

From an economic point of view, while specialized technicians receive a fixed fee for every farm surveyed, farmers do have to cooperate for free: even so, farmers' collaboration is rewarded in non-monetary ways. First of all, farmers have access to aggregated data<sup>2</sup>, used both to define a benchmark to their own results and to check their farm strategic position. Secondly, they gain unlimited and free access to the site, managed by Inea, providing updated information on agricultural grants and subsidies at European, national and local levels. At last, farmers also profit

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<sup>1</sup> ROE, ROI and ROS are traditional indexes built upon aggregated data from farm balance sheet.

<sup>2</sup> As common dealing with privacy issues, data resulting from RICA database are disclosed only if aggregated, with law obligations burden upon every subject involved in the survey:

from policy decisions tailored on RICA's results, that is to say deriving from an actual and objective knowledge of territorial realities.

### 3. RICA'S RESULTS IN A MACRO CONTEXT

#### 3.a RICA AND THE VALUE ADDED IN NATIONAL ACCOUNTS

The first step in describing RICA's use in the context of national accounts is to analyse how statisticians were induced to integrate RICA in the SNA (System of National Accounts).

In 1995 the European Union, in its steady effort to harmonize national accounts statistics for its member states, published the current *European System of Accounts 1995* (1995 ESA), which is the European version of the 1993 SNA and with which it's perfectly compatible. The 1995 ESA is embedded in EU legislation so that harmonisation of national accounts is a legal requirement for EU member states, as well as for countries that have applied for future membership (OECD 2006).

The 1995 ESA sets precise guidelines which are necessary because national accounts statistics are used by the European Commission to allocate regional development funds, calculate the contribution to the European budget, and more recently to monitor the sustainability of public finance (OECD 2006). One of the new features in 1995 ESA is setting the farm as the statistical elementary unit, a prelude to a shift towards a farm-based approach for estimating agricultural data: this change caused RICA to become a primary data source.

The right chance to introduce RICA among other sources utilised to compile national accounts came when Italy instituted the statistical series revision on the basis of the 1995 ESA: this process started in April 1999, with a second important revision implemented in 2005. This result derived from a cooperation agreement between the Italian National Institute of Statistics (ISTAT) which is entrusted with National Accounts compilation in Italy and Inea which is responsible for the RICA survey. The agreement was urged by the need to minimize the statistical load upon the farms surveyed and to optimize financial and human resources budgeting. RICA's sample representativeness is assured by its design aimed to produce, as it was explained, a large set of data for both accountancy purposes and national statistics on agriculture.

Proceeding from the above described background, RICA is utilised for the agricultural sector in a national accounts framework to check data range in value added compilation. Agricultural value added in Italy, in fact, traditionally comes from a price-quantity approach: RICA allows this method to be supported by a direct survey approach to estimate both value of output and of intermediate consumption. This choice allows for a general view of a farm with data provided from the common used approach to be checked by direct surveying its components. Anyway, hidden economy is obviously estimated only with the traditional price-quantity approach.

In detail, for the value of output, RICA supplies data to set range values for price-quantity derived estimates, together with providing affordable guidelines as to secondary and related activities, whose consideration is often problematic for their border-line nature. Secondary activities like rural tourism and product transformation are detailed into the RICA survey in terms of output and costs, while related activities like contract work for others and hiring out of equipment are currently considered an emerging issue to focus upon. RICA's contribution on this side proves necessary, granting the possibility to get a comprehensive view of the so-called multifunctional farm, where traditional sources of income are joined by new ones.

As for intermediate consumption, RICA allows for a complete revision of price-quantity estimates related to crop specific and livestock specific costs, like seeds and plants, fertilizers, veterinary expenses, machinery maintenance, and many others. RICA's support on this side is decisive, considering that the traditional approach caused many figures to be underestimated, and the resulting value added inconsistent with farm's reality.

In addition to range definition and fine-tuning, RICA's large set of information allows statisticians to detect new trends in agriculture that could become interesting features in short-term,



like the past experience of organic production suggests. As a consequence, new products or sources of income for the farmer are monitored for a certain lapse of time and subsequently included in VA calculation.

Finally, it has to be stressed that, based on the above described adjustments in value added calculations, base changes took place with 2005 as benchmark year: implementing the changes along the historical series (*retropolation*), RICA proved particularly efficient thanks to its annual periodicity.

This paragraph showed how RICA is a useful tool for macroeconomists and statisticians compiling national accounts because of a peculiar need the agricultural sector has to fulfil, namely the availability of data related to the whole agricultural sector and to every single product. Even so, RICA's use is strictly devoted to annual national accounting, as well as regional accounts: yearly structure of the survey, in fact, avoids quarterly accounts from exploiting its potentialities.

As a last remark, other potential applications of the survey in a national accounts context come from Eurostat Standing Committee for Agricultural Statistics that set several guidelines to encourage RICA's inclusion in the Italian satellite counts of the agricultural sector.

### 3.b RURAL DEVELOPMENT POLICY EVALUATION AND THE RICA SURVEY

Another set of RICA's useful applications comes from EU Rural Development policy evaluation, a field in which three main activities are currently carried out thanks to the survey: context description, agri-environmental policy evaluation and the economic justification of rural development subsidies.

As for a general framework, a rural development policy is aimed to accompany and complement the market and income support policies of the EU common agricultural policy, also taking into account the general objectives for economic and social cohesion policy set out in the Treaty establishing the European Community (EU Council Regulation 1698, issued on 09/20/2005). In detail, Rural Development policy is aimed at ensuring the sustainable development of rural areas throughout a series of programmes financed by the European Agricultural Fund for Rural Development (EAFRD), whose operative life is 7 years (2007-2013). Considered the amount of programmes targeting a EAFRD financing, only core objectives at Community level are pursued, namely enhancing human potential, improving farm's physical potential and the quality of agricultural production.

The above mentioned development strategies may be implemented by means of a plenty of initiatives, among which the following are included:

- ❖ with regard to the enhancement of human potential, measures on farmers' training to boost innovation in farm management, benefits to young farmers to avoid country depletion and advisory services to help farmers in managing their holdings;
- ❖ with regard to the improvement of physical potential, measures to modernize agricultural holdings and infrastructure, promotion of the food sector and the introduction of adequate measures to prevent natural disasters;
- ❖ with regard to the quality of agricultural production, measures to help farmers in meeting Community standards and in participating in food quality schemes, as well as support to producer groups for promotion activities.

Following a EU typical decentrated approach in programme management, a common framework of implementation rules is settled out at community level (EU Commission Regulation 1974, issued on 12/15/2006 and EU Commission Regulation 1975, issued on 12/07/2006), while member states are devoted to detailed enforcement.

Without entering into the complex structure of Rural Development regulation, legal obligations related to monitoring and evaluation are settled out to check both efficiency in fund allocation and effectiveness in financial resources use. Such obligations relate to an audit system design and enforcement, and to annual progress reports sent to the Commission.

EU Commission is particularly concerned with evaluation quantitative aspects, due to the twofold exigency to report on the effectiveness of Rural Development programmes and to compare results among member states. To accomplish with both tasks the Commission issued *The common monitoring and evaluation framework*, settling common guidelines with reference to five main categories of indicators (those related to the baseline, to the financial execution, outputs, results and impact of the programmes) and to a limited series of additional indicators that each rural development programme shall specify.

As evaluation is a responsibility of every Member State, the Italian public body assigned for its enforcement is the Ministry for Forestry, Agricultural and Food Resources (while evaluation is materially carried out by independent evaluators), whose *Handbook on evaluation* put into practice Commission *Guidelines* on a national and regional scale. *Handbook* provisions with regard to data collecting, in particular, distinguish between two main categories of data sources: primary data, collected for evaluation purposes and secondary data being the traditional statistical sources. RICA is typically a secondary source with two important features requested by the Commission for that kind of source, that is to say a sample derived from a stratification aimed at minimizing statistical bias and, above all, enhancing the representativeness of the universe.

It's compulsory to stress that RICA undertook a considerable effort to meet with evaluation requirements, with specific adjustments as follows:

- ❖ building of a new database collecting traditional RICA information and additional data (mainly administrative) from regional satellite samples built from the universe of farms taking part in Rural Development programmes. Given that Rural Development measures are enforced through territorial programmes, local authorities receive every year the database related to their own geographical dimension: distribution is free of charge in exchange for local authorities contribution to RICA funding;
- ❖ improved validation procedures on the proprietary software utilised in data management.

The improvements realised for evaluation purposes granted RICA new database a widespread use in the context of Rural Development, among which the following applications may be listed:

- context description: database is queried to define the context in which programmes are implemented;
- agri-environmental policy evaluation: RICA's great number of variables gives the possibility to evaluate measures with an environmental impact;
- economic justification of rural development subsidies: RICA indicators may be easily used as an eligibility criteria for prize congruity as requested according to Commission Regulations ;
- counterfactual techniques: database allows a comparison between farms receiving subsidies and those not;
- best practise: database helps in defining best practises from the analysis of programmes performance.

Since the first three applications are those that require major concentrated efforts from RICA managers and generate main interest from RICA users, the next paragraphs will detail them to give the reader an overall view of RICA's use in the macro context of Rural Development.

### 3.b.1 CONTEXT DESCRIPTION

RICA's database for evaluation purposes in the field of Rural Development is primary utilised in the delicate task of context analysis for time and space comparisons. Context description is carried out through the use of a wide range of ratios, ranging from structural indexes (*i.e. labour intensity, etc.*) to economic indicators (*i.e. labour productivity, public funding*

*incidence, etc.*). Context indicators help detecting exogenous factors whose incidence may interfere with Rural development measures' enforcement.

RICA's main competitive advantages in context analysis scenario derive from the possibility to extend its results to the universe of Italian farms and from enriched statistical information provided thanks to the renewed database for evaluation purposes.

RICA's improved archive first merit, in fact, is the possibility to build ratios to estimate the overall impact of measures tailored on a limited number of final beneficiaries. Such data are key information for *scenario* analysis techniques like SWOT analysis and Logical Framework. Moreover, RICA Data Base may be also used for territorial analysis techniques with different benchmarks at several geographical levels (*municipality, district, mountain municipalities aggregation, less favoured area, altimetry, etc.*).

The second advantage, instead, proceeds from the fact that administrative data collected from other sources are a necessary complement to RICA's traditional set of variables: extra farming revenues of family members, for example, joined with the traditional data providing the value of remuneration from the agricultural holding, give a complete account of the economic situation related to the farmer and his family.

In addition to completely new information, further data supplied to RICA database for evaluation purposes are no more than just known variables but deeper detailed: grants and subsidies, for example, are the typical case of traditional data whose informative attributes are specified to the last degree.

RICA's database for evaluation purposes use in context analysis accounts for successful examples in the previous Rural Development programming years (2000-2006): several Managing Authorities of regional programmes chose technical-economical ratios to get both an on-going monitoring and final results of the impact of measures. Main fields of analysis dealt with structural investments to modernize agricultural holdings, young farmer benefits and grants provided to farms in less-favoured areas.

Indeed the context description approach is not to be taken without cares: in time and space series, just to give an example, sample continuity is a must and it has to be checked from time to time, given that events like substitution of farms refusing to take part to the survey, may influence it. In a situation of farms' partial turnover, anyway, a valid solution comes from referring to homogenous clusters of farms.

Other limits to RICA's use will be discussed further on, in the paragraph appositely devoted to their enumeration.

### 3.b.2 AGRI-ENVIRONMENTAL POLICY EVALUATION

The second prominent role played by RICA's database for evaluation purposes is defined with regard to agri-environmental policy, where appropriately chosen variables help signalling in the directions of both farm management and habitat preservation. Furthermore, as in context analysis both ongoing monitoring and final evaluation benefit from the enhanced potentialities of RICA's dedicated archive.

Preliminary to the description of RICA's use, a general framework may help in understanding the way agriculture answers to society's increasing attention to environmental values. The definition of agri-environmental policy, in fact, covers a variety of measures aimed at promoting agricultural production methods compatible with the protection and improvement of the environment, the landscape and natural resources. Welfare impact of such measures is not limited to farmers but affects society as a whole, making agri-environmental policy one of the most important issues in EU agricultural policy and one of the pillars for sustainable development of rural areas. Measures related to environmental impact reduction, for example, help the farmers to set new production processes whose consequences on the ecosystem are minimized in comparison to traditional ones; and measures related to organic farming, which from its side, supplies the farmers



with a chance for new source of income but also helps improving the range and quality of food products final consumers currently experience; and so on.

Support for standard adoptions other than mandatory ones (e.g. those related to minimize fertiliser and plant protection product use) and for the conservation of genetic resources in agriculture are the typical actions falling within the scope of agri-environmental policy. EU Regulatory provisions, in particular, accounts for the so-called *polluter-pays* principle, according to which payments cover only those commitments going beyond the relevant mandatory standards (EU Council Regulation 1698, issued on 09/20/2005).

Funding schemes grant coverage for both additional costs and income foregone, with transaction costs accorded on a contingent base, and beneficiaries' selection following criteria of economic and environmental efficiency.

In addition, every member state has competence for monitoring and evaluation with indicators designed to get the components of agri-environmental measures, namely agricultural performance and environmental impact. RICA's database for evaluation purposes sets forth in the task of providing the indicators needed, due to the consideration of farm as a deputy place to gauge the twofold effects of the above mentioned policy.

RICA's contribution is determinant assuming that its large information set has to satisfy the needs of a plurality of local authorities, each one autonomously managing (and evaluating) agri-environmental measures. In detail, RICA's archive is queried to get variables to be used just as they are, like the amount of EU subsidies for eco-compatible farming and maintenance of the countryside and the landscape, or aggregated in complex algorithms.

In order to get a comprehensive view of the potentialities offered by RICA, a two-step methodology was set down, as it is hereunder explained: at a first stage, different approaches in evaluation were pooled together by defining macro and micro categories of indicators usually adopted by Italian Local Managing Authorities following EU rules; subsequently, the indicators' availability into the RICA archive was checked.

As a result of the first step, 8 macro-categories of indicators were settled down: soil pollution and erosion, quality and quantity of water, biodiversity, landscape, human wealth, atmosphere, mixed indicators and indirect indicators. The first six clusters are immediate, the seventh one (*mixed*) includes indicators falling in two or more of the previously listed categories, while the residual class (*indirect*) collects indicators signalling environmental values in an indirect way. Mixed indicators are usually utilised to analyze general features in agriculture like best practises (e.g. number of farms adopting EU best practises standard) or organic farming (e.g. number of hectares devoted to organic farming). Indirect indicators, on their side, infer environmental issues from traditional economic and structural variables, typically assembled into ratios, like the one comparing organic and conventional farming income.

Every macro-category is then splitted into the same three classes (or micro-categories) of farm management, extra-farm management and mixed indicators. The first cluster includes indicators built upon farm data, the second one those proceeding from extra-farm management information, the third class is made up with indicators built partly upon management information and partly upon extra-farm data. 'Extra-farm' stands for information farmers cannot provide because it is usually derived from dedicated surveys on environmental aspects like underground waters or greenhouse gas emissions. With regard to the soil erosion macro-category, for instance, "Crop rotation" is a typical farm management indicator obtained thanks to data available from farm accountancy, "soil contamination from plant protection products" is an extra-management indicator derived from geological sample collecting and chemical analysis, while the "balance sheet of soil nutritions" is a mixed indicator made by nutritions total amount (organic and mineral fertilizers from farm accountancy but also atmospheric fall-out measured with *ad hoc* surveys) minus the amount of nutritions taken away from plants (again proceeding from dedicated surveys).

The second step in the above described methodology resulted in RICA providing indicators for all the eight macro-categories: as for the following division, RICA's enhanced archive accounts for almost every indicator of farm management and every management component of mixed

indicators, that is to say more than 50% of the whole universe of indicators. Analytic accountancy as one of RICA's characteristics proved decisive in gaining such result due to its detailed reporting of agricultural production processes, as this brief list of indicators clearly shows:

- ❖ as for soil pollution, type and quantity of fertilizers and crop protection (*management*). It's worthwhile noting that the same indicators may be referred also to water quality as proxies of water pollution;
- ❖ as for soil erosion, type of crops and lapse of time crops insisted on a given land area (*management*);
- ❖ as for water quantity, volumes of water used in land irrigation (*management*);
- ❖ as for biodiversity, type of crop and livestock (*management*);
- ❖ as for landscape, land area benefiting from aids for environment and landscape protection (*management*);
- ❖ as for human wealth, plant protection products use (*mixed*);
- ❖ as for atmosphere, wood area devoted to bioenergetic crops (*management*);
- ❖ as for mixed indicators, intensive/extensive farming ratios (e.g. grazing livestock/forage area) (*management*);
- ❖ as for indirect indicators, farming revenue incidence (i.e. agricultural income/other income) (*management*).

It's appropriate to say that analytical reporting and RICA's improved archive provide the most of the successful outcome described above. Moreover, the result was also a positive combination of both RICA's current accountancy methodology and EU evaluation requirements for agri-environmental policies in the programming period 2000-2006. Anyway, new requirements for programming period 2007-2013, issued on September 2006, are not being checked on RICA's database yet, even if the general trend emerged from the past experience may be probably confirmed, namely RICA providing management indicators and management components of mixed indicators.

### 3.b.3 ECONOMIC JUSTIFICATION OF RURAL DEVELOPMENT SUBSIDIES

The third main use of RICA's database for evaluation purposes with reference to Rural Development is represented by the economic justification of subsidies in the application form presented by the Local Authorities to the European Commission. In compliance with Commission Regulation, in fact, funding has to be justified by Local Authorities demanding it on an objective basis, defined in a nationally agreed framework where RICA's indicators proved an effective easy-to-use tool.

In particular, the objectiveness legislative provisions make reference to is assured by calculations made upon verifiable elements, derived from clearly indicated statistical sources. Moreover, strict rules are settled in detail for the determination of subsidy amount, demanding -for example- calculations that take into account regional or local site differences as well as actual land use.

According to the legislative obligations described above, Italy has developed methodological guidelines to be used by Local Authorities when filling in the form for economic justification of Rural Development prizes. Guidelines are presented hereafter, together with the explanation of RICA's enhanced archive use in such context.

Starting from data collecting, the general framework allows the use of traditional statistical sources: RICA, in particular, is the only source of micro-economic information to evaluate subsidy support, given that other statistical sources typically supply macroeconomic data. Moreover, being RICA an official statistical source, the pressing demand of affordable data that may be easily checked out is completely fulfilled.

With regard to calculation methodology then, RICA's data support different algorithms to define subsidy amount. In the case of measures impacting on both agricultural costs and incomes, for example, RICA allows a counterfactual economic analysis: a comparison is developed between

the gross margins of actual farms with that of farms hypothetically adhering to the measure. The difference between the two values is a benchmark to define subsidy support.

In addition, for certain measures Member States may fix the level of support provided, as in the case of interest rate subsidies for loans, on the basis of standard costs and standard assumptions of income foregone. RICA helps defining the threshold for subsidies thanks to its analytic accountancy derived data for both costs and incomes, collected in historical series dating back from 1980.

Even if RICA proved decisive in the above described applications, it cannot be utilized in the case of a completely new measure, where historical series cannot be arranged and where simulations of trends affecting costs and incomes necessarily proceed from data derived from other statistical sources.

### 3.b.4 RICA'S LIMITS IN EVALUATING RURAL DEVELOPMENT POLICY

The strengthening of EU Rural Development policy is an overall EU priority due to the importance of farming in rural areas: agriculture, in fact, stands for a source of income for farmers (with 60 % of the population in the 27 Member States living in rural areas) and a way to manage natural resources for the community as a whole (with rural areas covering 90 % of the territory).

Given the prominent role of Rural Development, RICA's improved archive allows for a widespread use due to availability of traditional farm accountancy data and additional information from regional satellite samples. Anyway, RICA's use proves problematic in specified situations, apart from the specific difficulties described in every previous paragraphs, as represented by the following list:

- ❖ when satellite samples are not large enough to supply data to be linked to traditional information in RICA's enhanced archive;
- ❖ when representativeness is referred to stratification variables other than the three RICA's sample is built upon, namely geographical location, type of farming and economic dimension;
- ❖ when limited-in-scope measures impact on crops and livestock not deeply investigated by RICA, due to their marginal relevance in the national context: RICA's representativeness, in fact, is built with regard to the Italian agricultural production as a whole;
- ❖ as for land use changes, a dedicated satellite sample collecting data from Geographical Information System (GIS) on a national scale has not been realized yet, even if attempts had been made with reference to geographical limited areas and to a single year.

## CONCLUSIONS

Italian RICA could be an efficient solution for those countries where economic analyses are needed in short time lapses but general census cannot be held because of economic and organizational hurdles. A limited number of farms collected in a well shaped sample proves sufficient for overall indications, if universe representativeness is safeguarded. Moreover, RICA supplies economic indications for policy design and enforcement, together with providing farmers with a detailed accountancy tool.

Annual periodicity of the survey grants changes to be implemented immediately, as in the case of a new sample design for 2008, urged by major changes in the universe of farms and by EU General Directorate for Agriculture new guidelines for national FADN sample design. Anyway the same yearly periodicity prevents the survey from being utilised for quarterly national accounts.

As a general rule, RICA's use in the above described frameworks will be subject to the limitations illustrated and to organizational frictions arising from a decentralized approach: in the case of Rural Development policy evaluation, for example, local authorities' contribution to RICA

funding may result in payments delays that need to be managed. For this reason, contractual efforts to improve compliance with deadlines are put into practice.

Finally, data coverage on both agricultural input and output allows farm's upstream and downstream markets to be monitored with only one tool, also granting price and quantity comparisons with data proceeding from other sources (e.g. from wholesale markets).

## REFERENCES

### 1. GENERAL REFERENCES

*Agriculture and Rural Development Planning*

Akroyd, David H.

Ashgate Publishing Limited, 2003

*Agricultural Policies in OECD Countries*

*Monitoring and Evaluation*

OECD PUBLISHING, 2005

*Common Evaluation Questions with Criteria and Indicators*

(Evaluation of Rural Development Programmes 2000-2006 supported from the EAGGF).

Document of the Commission Services (Directorate General for Agriculture), 2000

*Guidelines for the mid term evaluations of rural development programmes, 2000-2006 from the EAGGF.*

Document of the Commission services (Directorate General for Agriculture), 2002

OECD (2006)

*Understanding National Accounts*

Lequiller, François Blades, Derek

OECD PUBLISHING, 2006

### 2. EU LEGISLATION

COMMISSION REGULATION (EC) No 1974/2006 of 15 December 2006

laying down *Detailed rules for the application of Council Regulation (EC) No 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD)*

Official Journal of the European Union, 12/23/2006

COMMISSION REGULATION (EC) No 1975/2006 of 7 December 2006

laying down *Detailed rules for the implementation of Council Regulation (EC) No 1698/2005, as regards the implementation of control procedures as well as cross-compliance in respect of rural development support measures*

Official Journal of the European Union, L 368/74

COUNCIL REGULATION (EC) No 1698/2005 of 20 September 2005

*on Support for rural development by the European Agricultural Fund for Rural Development (EAFRD)*

Official Journal of the European Union, 10/21/2005





## **Abstract**

## **Introduction**

1. **The Italian farm accountancy data network: its competitive advantages** (Di Mico)
2. **Rica's methodology** (Di Mico)
  - 2.a **Sample design** (Di Mico)
  - 2.b **The survey and its output** (Di Mico)
3. **Rica's results in a macro context**
  - 3.a **RICA and the value added in national accounts** (Mari)
  - 3.b **Rural Development policy evaluation and the RICA survey** (Scardera)
    - 3.b.1 **Context description** (Scardera)
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    - 3.b.3 **Economic justification of rural development subsidies** (Scardera)
    - 3.b.4 **RICA's limits in evaluating rural development policy** (Mari)

## **Conclusions**

## **References**

1. **EU legislation**
2. **General References**

**Even if the paper collects the efforts of the three authors as a whole, single paragraphs may be referred to as hereafter indicated:**

§ 1 and § 2 to Linda Di Mico

§ 3.a, 3.b.2 and 3.b.4 to Franco Mari

§ 3.b, 3.b.1 and 3.b.3 to Alfonso Scardera