

## Program evaluation methodologies – A comparative assessment

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### *Abstract*

*This paper presents the methodologies used to execute a program evaluation. Several types of methodologies and techniques on program evaluation can be found in the literature, composing a valuable reference base for the evaluator. By presenting the various methodologies we do not aim to measure their efficiency and propose the best one. On the contrary, we believe that each methodology has some advantages and, moreover, in some cases it could be the most appropriate. The aim of this paper is to summarise the different approaches in evaluation, to gather the various methodologies and to determine the specific circumstances under which each methodology is the most appropriate to follow. A more ambitious aim is to propose some interesting methodology mixes, which can be useful guides when looking for evaluation designs that fit better in the reality of a program.*

### 1. Introduction

In this paper we study the evaluation framework of the public

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programs, which are the programs funded by the government, the European Union or other public organizations. We do not present the methods and techniques used to evaluate an individual's plan or investment. We are going to work on the methods used to evaluate the full coverage of socio-economic programs.

In the framework of European Structural Fund programs for the period 1994-99, evaluation is carried out in three stages (European Commission, 1999):

1. Ex ante evaluation focuses on the planned program. It concerns the coherence and the relevance of the project and the realism of the expected results.
2. Intermediate (or on-going) evaluation focuses on the effects of the very first outputs of the program. It is used by decision makers at all levels. It is complimentary to monitoring and intends to reorient the program mid-way.
3. Ex post evaluation intends primarily to report on the effects of programs.

A method is an ad hoc procedure specially constructed for a given evaluation. The term method is similar to design. In the American literature evaluation design is applied to the way in which a given evaluation is constructed. The terms approach and procedure are similar. They apply to a given method and to the spirit in which this method has been constructed (European Commission, 1999).

In the respective literature an important number of evaluation methods and techniques are proposed. Patton (1986) reports that roughly 132 different techniques of evaluation are in use. The big crowd of evaluation techniques raises the question of their systematic categorisation, so that they can express a unified evaluation value framework and a concrete acceptable theoretical background, which is uniformly used (Lagos & Lianos, 2000).

In the following chapters we present some approaches in program evaluation and the basic program evaluation methodologies. By analysing the approaches we point out the basic principles upon which a method is built upon while, by contrasting them we signalize their main characteristics. Hereafter, the basic evaluation methodologies are described with a critical point of view. We consider the advantages and disadvantages of each method and we proceed in a comparative assessment. Such an assessment indicates in which case it is more appropriate to use each methodology.

Next, we examine the combination of evaluation methods as a

new proposal in evaluation design. In this respect we recognize it as necessary to give some instructions for a successful outcome when combining pure methodologies. For a better understanding of this we explain the basic steps needed to obtain specific methodological combinations.

The study concludes with the evaluation methodologies described and the more flexible approaches proposed.

## 2. Types of evaluation and methodological approaches

### 2.1. Types of evaluation

There are four major approaches in evaluation (European Commission, 1999):

#### a) Experimental Approaches

Experimental approaches treat phenomena of causality without analyzing them directly. The effects of the programs are demonstrated by comparing a treatment group with a control group. Evaluations carried out in this framework are typical of American practices in the 1960s and 1970s. These evaluations are long, cumbersome and not always conclusive.

#### b) Economic Approaches

Economic approaches are based on an individualistic view of society, inspired by welfare economics. From this point of view, the value of a public action is the sum of the benefits it provides to individuals. All individuals are supposed to have a system of references and it is assumed that these systems of reference can be aggregated. These hypotheses are used to give an objective character to evaluations carried out by economic techniques. Despite their elegance, economic techniques have been strongly criticized, in both practical and theoretical terms.

#### c) Naturalistic or Pluralistic Approaches

Naturalistic or pluralistic approaches are based on the idea that the political and social world is a collective construction. This construction results from the interaction of differing social groups that have their own interpretations of the same phenomena and issues.

Consequently, public programs are seen as temporary compromises between groups and actors. By means of appropriate techniques, based to a large extent on group work, evaluation acts as a mediator between the different points of view. It is a tool for promoting conciliation between the stakeholders, and its conclusions are all the more robust when they are a product of consensus.

#### d) Pragmatic Approaches

Pragmatic Approaches adopt simplified views of the processes that they have to describe. Theoretical references are less pure and more eclectic. Evaluation objectives are of essentially managerial rather than scientific nature. Evaluations carried out in this spirit, using techniques inspired by management approaches, are oriented more towards the implementation and improvement of efficiency. Their cognitive dimension is less important than in other forms of evaluation.

## 2.2. Methodological approaches in evaluation

### 2.2.1 *Quantitative & Qualitative approaches*

Quantitative analyses focus on testing hypotheses and use structured designs and statistical methods to analyze data. This type of information needs standardization, precision, objectivity and reliability of measurement (internet).

Qualitative approaches, in contrast, gather data in a more open-ended fashion. Data collection usually occurs in natural settings, and focuses more on experiential or subjective aspects of a program. These data can include narrative accounts and may employ multiple data collection techniques (Worthen, Sanders & Fitzpatrick, 1997). Evaluators use qualitative designs to help them understand and describe program implementation rather than to demonstrate statistically significant effects (internet).

### 2.2.2 *Content & Inductive approaches*

Content approaches involve identifying coherent and important themes and patterns in the data. The analyst looks for quotations or observations that go together. Practically, that means pulling together all the data that address a particular evaluation question and then, subdividing that data into coherent categories, patterns and themes (Patton, 1987).

Labeling the data and establishing a data index are the first steps in the Content Approaches. Subsequently, it is critical to have a classification system for the contents of the data. Organizing and simplifying the complexity of data into some meaningful and manageable themes or categories is the basic purpose of the Content Approaches (Patton, 1995). Generating useful and credible qualitative evaluation data through observation and interviewing, in the frame of content approaches, requires discipline, knowledge, training, practice and hard work (Patton, 1987).

By contrast to Content Approaches, Inductive Approaches mean that the patterns, themes and categories of analysis come from the data. They emerge out of the data rather than being decided prior to data collection and analysis. The analyst looks for natural variation in the data. For evaluators, the study of natural variations will involve particular attention to variations in program processes and the ways in which participants respond to and are affected by programs (Patton, 1995).

### 3. Program evaluation methodologies

#### 3.1. Efficiency analyses

Knowledge of the extent to which programs have been implemented successfully and the degree to which they have the desired outcomes is indispensable to program managers, stakeholders and policymakers. In almost all cases, however, it is just as critical to be informed about how program outcomes compare to their costs (Rossi and Freeman, 1993).

Efficiency assessments –Cost Benefit Analysis and Cost Effectiveness Analysis– provide a frame of reference for relating costs to program results. The procedures employed in both types of analysis are often highly technical and their applications will be described only briefly here (Rossi & Freeman, 1993).

##### 3.1.1 *Cost-Benefit Analysis*<sup>3</sup>

Cost-Benefit Analysis estimates and totals up the equivalent money value of the benefits and costs of projects to the community, in order to establish whether they are worthwhile.

In order to reach a conclusion, as to the desirability of a project,

all aspects of the project, positive and negative, must be expressed in terms of a common unit. The most convenient common unit is money. This means that all benefits and costs of a project should be measured in terms of their equivalent money value. A program may provide benefits which are not directly expressed in terms of euros but there is some amount of money the recipients of the benefits would consider just as good as the project's benefits.

Not only do the benefits and costs of a project have to be expressed in terms of equivalent money value, but they have to be expressed in terms of euros of a particular time. This is not just due to the differences in the value of euros at different times because of inflation. A euro available five years from now is not as good as a euro available now. This is because a euro available now can be invested and earn interest for five years and would be worth more than a euro in five years. If the interest rate is  $r$  then a euro invested for  $t$  years will grow to be  $(1+r)^t$ . Therefore the amount of money that would have to be deposited now so that it would grow to be one euro  $t$  years in the future is  $(1+r)^{-t}$ . This is called the «discounted value» or «present value» of a euro available  $t$  years into the future.

When the euro value of benefits at some time in the future is multiplied by the discounted value of one euro at that time in the future, the result is discounted to present value of that benefit of the project. The same thing applies to costs. The net benefit of the projects is just the sum of the present value of the benefits less the present value of the costs. The choice of the appropriate interest rate to use for the discounting is a separate issue.

If the discounted present value of the benefits exceeds the discounted present value of costs then the project is worthwhile. This is equivalent to the condition that the net benefit must be positive. Another equivalent condition is that the ratio of the present value of the benefits to the present value of the costs must be greater than one.

If there are more than one mutually exclusive projects that have positive net present values then there has to be further analysis. From the set of mutually exclusive projects the one that should be selected is the one with the highest net present value.

Costs are either one-off, or they may be ongoing. Benefits are most often received over time. We build this effect of time into our analysis by calculating a pay-back period. This is the time it takes for the benefits of a change to repay its costs.

The impact of a project in the Cost-Benefit Analysis is the difference between what the situation in the study area would be with and without the project. This means that when a project is being evaluated the analysis must estimate not only what the situation would be with the project but also what it would be without the project. In other words, the alternative to the project must be explicitly specified and considered in the evaluation of the project. Note that the with-and-without comparison (ex ante evaluation) is not the same with the before-and-after comparison (ex post evaluation).

### 3.1.2 *Cost Effectiveness Analysis*

By contrast to Cost Benefit Analysis, Cost Effectiveness Analysis does not require the benefits and costs to be reduced to a common denominator. Instead, the effectiveness of a program in reaching given substantive goals is related to the monetary value of the costs (Levin, 1975).

In Cost Effectiveness Analysis, programs with similar goals are evaluated and the costs compared. Cost Effectiveness Analysis, thus, allows comparison and rank ordering of programs in terms of their costs for reaching given goals, or the various outputs required for different degrees of goal achievement (Rossi and Freeman, 1993).

Cost Effectiveness Analysis is based on the same principles and utilizes the same methods as Cost Benefit Analysis. The assumptions of the method, as well as the procedures required for measuring costs and discounting, for example, are the same for both. Therefore, the concepts and methodology introduced previously with regard to Cost Benefit Analysis can also be regarded as a basis for understanding the Cost Effectiveness Analysis (Rossi and Freeman, 1993).

## 3.2. Impact analysis

All impact assessments are comparative. Determining impact requires comparing, with as much rigor as it is practicable, the conditions of targets that have experienced an intervention with those of equivalent targets who have experienced something else (Rossi and Freeman, 1993).

Full coverage programs present special difficulties to evaluators attempting impact assessments since there are no un-served targets available to use as controls. The only comparisons available to the researcher are between the same targets before and after exposure to

the intervention, which are called reflexive controls (Rossi and Freeman, 1993).

Although few evaluation designs have as much intuitive appeal as simple before and after studies, they are among the least valid of assessments. The essential feature of this assessment is a comparison of the same targets at two points in time, separated by a period of participation in a program. The differences of the two measurements are taken as an estimate of the net effects of the intervention (Rossi and Freeman, 1993).

Another applicable design in the course of impact assessments is the Time Series Analysis. The Time Series Analysis involves many repeated measures. The measures are taken on an aggregate unit with many data points preceding and following the point in time at which a new full-coverage intervention was introduced or an old program was substantially modified. By «aggregate» statistical series, we mean periodic measurements taken on a relatively large population (or parallel samples of it) as, for example, vital statistical series (births, deaths, migrations) (Rossi and Freeman, 1993).

Time Series Analysis is especially important for estimating the net impacts of changes in full coverage programs, particularly those that are delivered uniformly. For example, social security retirement payments are uniform for all persons with the same pre-retirement employment records. If retirement payments or sanctions for convicted felons are changed at some point of time then the impact of those changes can be studied through Time Series Analysis (Rossi and Freeman, 1993).

### 3.3. Planning balanced sheet

Planning Balanced Sheet Analysis uses monetary units for the measurements. Time dimension and physical scales are added in the assessment while equity principles are incorporated (KEPE, 1997).

This analysis entitles the goals to be measured as a mirage of the preferences of the agents being surveyed. A main disadvantage is that a person is assumed to belong to only one group, while his other attributes may be omitted (KEPE, 1997).

### 3.4. Goal achievement matrix

Goal Achievement Matrix consists in evaluating a program by the extent of the objective goal's achievement. Like Planning Balan-



ce Sheet, Goal Achievement Matrix uses monetary units for the measurements. The novelty in this assessment is that the evaluator enjoys the benefits of flexibility to examine each goal through several points of view due to the form of the Matrix (KEPE, 1997).

### 3.5. Multicriteria analysis

Multicriteria Analysis takes into account the conflicts and reconciliations between all involved interested parties (KEPE, 1997).

Nijkamp (1997) inducts the Concordance Analysis, a three phase process, for the confrontation of problems in Regional Planning. The process is summarized in the following steps: Some criteria are determined, grouped and compared per two. Then they are presented in a matrix in order to be calculated with indicators of concordance or discordance. Nijkamp considers that, thereafter, Cost Benefit Analysis may be used in the calculating part of the assessment (KEPE, 1997).

Holmes (1972) proposes a process of ranking. The ranks of goals and criteria are determined in advance. The innovations that gather more ranks are the most prospective to be chosen. The major disadvantage of Ordinal Ranking methods is that they comprise subjective elements (KEPE, 1997).

## 4. A comparative assessment

In this chapter we attempt a comparative assessment of the evaluation approaches and methodologies reported above. Firstly, the approaches and methodologies are criticized separately. Following this, the methodologies are presented in a table and their main characteristics are compared. Furthermore, the methodologies are assessed in regard to the approach that they involve.

### 4.1. Comparative assessment of approaches

#### 4.1.1 *Quantitative & Qualitative approaches*

A qualitative evaluation design might be particularly appropriate where, for whatever reasons, either program processes or program impacts, or both, were largely unspecified. Sometimes the reason is

because outcomes were meant to be individualized; sometimes the program is simply uncertain about what the outcomes will be. Under such conditions one purpose of the evaluation may be to help articulate program processes, program impacts and the linkages between the two (Patton, 1995).

Qualitative methods permit the evaluator to study selected issues, cases or events in depth and detail. The fact that data collection is not constrained by predetermined categories of analysis contributes to the depth and detail of qualitative data. Quantitative methods, on the other hand, use standardized measures that fit various options and experiences into predetermined response categories. The advantage of the quantitative approach is that it measures the reactions of a great number of people to a limited set of questions, thus facilitating comparison and statistical aggregation of the data. This provides a set of findings, which are broad and applicable for generalization. By contrast, qualitative methods typically produce a wealth of detailed data about a much smaller number of people and cases (Patton, 1987).

An unfortunate debate has arisen about which of these two approaches is «best.» This debate is not productive. A combination of approaches frequently yields the most useful information. For example, when first approaching an evaluation, an open-ended approach can provide information that will assist the evaluator in developing more quantitative measures. Qualitative measures will provide illustrations and examples that stakeholders may find helpful in understanding the effect of the program on individuals. Further, stakeholders, and members of the general public tend to remember and be moved by case illustrations that describe an individual's experience (internet).

#### *4.1.2 Inductive and deductive approaches*

In evaluations, the classic deductive approaches are measuring relative attainment of predetermined clear, specific and measurable goals. By contrast, the classic inductive approaches are goal free evaluations in which the evaluator gathers qualitative data on actual program impacts through direct observations of program activities and in depth interviews with participants, without being limited to stated, predetermined goals (Patton, 1987).

## 4.2. Comparative assessment of methodologies

### 4.2.1 *Efficiency Analyses*

The employment of Efficiency techniques (Cost Benefit and Cost Effectiveness Analysis) is appropriate for all phases of program implementation. However, Efficiency Analyses are most commonly undertaken either during the planning and design phase of an initiative, or after an innovative or markedly modified program has been in place for a time and there is interest in making it permanent or possibly expanding it (Rossi and Freeman, 1993).

Ex ante Cost Benefit Analysis is most important for those programs that will be difficult to abandon once they have been put into place, or that require extensive commitments in funding and time to be realized. Decisions on the application of technology and science to public health, medical care and environmental problems are preceded in many cases by ex ante Cost Benefit Analysis because of the extensive resource commitments required. But, most commonly, in the social program field, Efficiency Analysis takes place after the completion of an impact evaluation, when the net impact of a program is known. The focus of such ex post Cost Benefit and Cost Effectiveness assessments may be on examining the efficiency of a program in either absolute or comparative terms, or both. In all cases, the analysis is undertaken to assess whether the costs of the intervention can be justified by the magnitude of the net outcomes (Rossi and Freeman, 1993).

#### 4.2.1.1 *Cost-Benefit Analysis*

In this approach, very little attention is paid to the problems of finding and setting parameters. Analysts tend to include certain benefits and costs in their research because others have done so in the past. Thus each sort of program develops its own conventions, so that predictable sets of benefits and costs are treated depending on whether a program is a dam, a transportation system, a training program, a government regulation, or whatever. Whatever the sources, it is clear that it is the analyst's responsibility to look, beyond the obvious gains and losses, to factors that are more indirectly or distantly implicated but are nevertheless important. Gramlich (1990) mentions such factors as pollution, health, safety, waste of time, secondary market impacts, and impacts on marital and family ties (Mohr, 1995).

At the same time, on the limiting side, analysts are cautioned to be sensitive to the possibility of duplication, or double counting, by including the same cost or benefit more than once in different guises. Double counting of benefits or costs must be avoided (Mohr, 1995).

The valuation of benefits and costs should reflect preferences revealed by choices which have been made. The most challenging part of Cost-Benefit Analysis is finding past choices which reveal the tradeoffs and equivalencies in preferences. For example, the valuation of the benefit of cleaner air could be established by finding how much less people paid for housing in more polluted areas, which, otherwise, was identical in characteristics and location to housing in less polluted areas.

It is sometimes necessary in Cost-Benefit Analysis to evaluate the benefit of saving human lives. There is considerable antipathy in the general public to the idea of placing a money value on human life. Economists recognize that it is impossible to fund every project which promises to save a human life, and that some rational basis is needed to select which projects are approved and which are turned down. The controversy is defused, when it is recognized that the benefit of such projects is in reducing the risk of death. This computation is equivalent to placing an economic value on the expected number of lives saved.

In fact it is recognized that not all impacts can successfully have a monetary value placed on them. Analysts are urged to go as far as possible in that direction and, rather than ignore not monetized impacts, simply present them on the side, as it were, in their original scales (Gramlich, 1990). Another weighting that may become important for the Cost-Benefit Analysis is the weighting of groups for importance in connection with the impacts of a particular policy. This kind of weighting is done subjectively by the analyst, often in consultation with others who have a concern regarding the policy. In this sort of case, the evaluator usually applies techniques such as sensitive analysis, that provide decision makers with a series of results instead of only one, each depending on the use of different set of weights (Mohr, 1995).

The function of assessing impact is central to Cost-Benefit Analysis. It is performed in highly complex ways and demands a great deal of expertise and creativity. The predominant approach involves a) the acquisition of at least some minimally essential amount of real world data on prices and quantities (including information about

goods, wages, interest rates, etc) and b) economic theory as a basis of extrapolating and imputing from there (demand and supply curves, marginal cost curves, etc) (Mohr, 1995).

The impacts of a project are defined for a particular study area, be it a city, region, state, nation or the world. The nature of the study area is usually specified by the organization sponsoring the analysis. Many effects of a project may «net out» over one study area but not over a smaller one. The specifications of the study area may be arbitrary but they may significantly affect the conclusions of the analysis.

#### 4.2.1.2 *Cost Effectiveness Analysis*

Cost Effectiveness Analysis is a feasible alternative to Cost-Benefit Analysis when benefits cannot be calibrated in monetary units. It permits programs with similar goals to be compared in terms of their relative efficiency and can also be used to analyze the relative efficiency of variations of a program (Rossi and Freeman, 1993).

But, because the benefits are not converted to a common denominator, we cannot ascertain the worth of merit of a given intervention in monetary terms from such an analysis. Likewise, we cannot determine which of two or more programs in different areas produce better returns. In this analysis, efficiency is judged by comparing costs for units of outcome (Rossi and Freeman, 1993).

#### 4.2.2 *Impact Analysis*

Impact assessments are undertaken to determine whether a program has its intended effects. Such assessments may be made at any stage of the program, from pre implementation policy making through planning, design and implementation (Rossi and Freeman, 1993).

Impact assessments may make use of qualitative or quantitative data. Although qualitative data are important for certain evaluative purposes, precise assessment of impact requires carefully collected quantitative data (Rossi & Freeman, 1993).

The main deficiency of the Impact Analysis design is that ordinarily it cannot disentangle the effects of extraneous factors from the effects of the intervention. Consequently, estimates of the intervention's net effects are dubious at best (Rossi and Freeman, 1993).

An additional complication is that, when programs have been in place for a period of time, «before» measures normally can be ga-

thered only by asking participating targets to reconstruct retrospectively what they were like before the intervention. In such studies the unreliability of recall can be a serious design effect.

As far as the Time Series Analysis is concerned, there are some limitations in its application. Perhaps the most serious limitation of many Time Series designs is the large number of pre-intervention observations needed in order to model pre-intervention trends accurately. Indeed, a Time Series Analysis can be performed only if extensive before-enactment and after-enactment observations on outcome measures exist. Of course, for many ongoing interventions, such long term measures do not exist. For this reason Time Series Analysis is usually restricted to outcome concerns for which governmental or other groups routinely collect and publish statistics (Rossi and Freeman, 1993).

#### 4.2.3 *Multicriteria Analysis*

Multicriteria Analysis compares the effectiveness and efficiency of several projects or interventions. It takes into account and synthesizes several effects, quantitatively and/or qualitatively. Multicriteria Analysis can be used to take into account any differences in the points of view of the partners. It is generally used *ex ante*. Its flexibility makes it suitable for use in many situations (European Commission, 1999).

The methodologies, presented previously, are tabulated in a critical assessment in Table 1.

## 5. Proposal of methodological approach in program evaluation

In the previous chapters we have proclaimed that each evaluation methodology has as many advantages as weaknesses. At this point, based on the above analysis, we propose two methodological approaches in program evaluation. In particular, we propose either the parallel application of several methodologies in an assessed program, or the mixing of existing pure methodologies to create a new approach. We appreciate that these two approaches can help the evaluator to overcome the weaknesses that may arise during the implementation of a single pure methodology.

**Table 1**  
**Comparative Assessment of Evaluation Methodologies**

Methodology	Origins	Qualitative or Quantitative Approach	Efficiency or Equity Criterion	Advantages & Disadvantages	When to use
Cost-Benefit Analysis	Jules Dupuit (A French Engineer) on 1848	Quantitative	Efficiency estimation	A: Of general acceptance D: Difficult to monetize qualitative variables	In standard types of projects
Cost Effectiveness Analysis	Originates from certain types of evaluations, notably in the domains of health and road safety	Quantitative	Efficiency estimation	A: Can serve to compare programs D: Compared programs should be of the same type	Specially in ex post evaluation
Impact Analysis	First used to define strategies or the re-organization of firms	Qualitative & Quantitative	Efficiency estimation	A: Allows a before-after comparison D: Failing of discerning the extraneous effects	In all phases of a program
Planning Balance Sheet	Lichfield, 1975	Qualitative	Equity Principles	A: Provides a general view D: Non focused	For descriptive analysis and when flexibility is desired
Goal Achievement Matrix	Hill, 1966	Quantitative	Efficiency estimation	A: Analytic assessment of goals D: Sometimes not precise	When decision makers are participants
Multicriteria Analysis	Nijkamp, 1975 (Concordance Analysis) Holmes, 1972 (Ordinal Ranking Methods)	Qualitative & Quantitative	Efficiency estimation & Equity Principles	A: Balance between conflict interests and possible ranking of needs B: May incorporate subjective elements	When dealing with more interests

Source: Own editing.

## Triangulation

Triangulation refers to the use of different data collection techniques and different research strategies to study the same program. According to Patton (1995), the term Triangulation is derived from the geometric shape triangle. The triangle is the strongest of all the geometric shapes and triangulated evaluation designs are aiming at increasing the strength of any evaluation. It is in data analysis that this strategy of triangulation really pays off, but in this paper we will discuss using multiple methods to study a program.

Triangulation is a powerful solution to the problem of relying too much on any single method and thereby undermining the validity and credibility of findings because of the weaknesses of any single method. Triangulation is the recognition that the evaluator needs to be open to more than one way of looking at the program (Patton, 1995).

Triangulation may be an ideal approach for evaluating a program. However, it is also very expensive. Most evaluation research involves quite limited budgets, short time frames and political constraints. In the reality of limited resources, attempts at triangulation may mean a series of poorly implemented methods rather than one approach well executed.

Besides, in the case of operational programs, Economou (1997) reports that a «synergy of the evaluations» is necessary. Indeed, since the evaluation of a specific program cannot include all related programs, there are obvious limits to the autonomy of every single evaluation. This leads to the conclusion that the evaluations of the different programs, even if they could follow a distinct time-table from an internal point of view, have to obey an overall co-ordination that will create the necessary inputs and outputs from/to the complementary interventions (Economou, 1997).

## Mixing analysis approaches

Triangulation is one way of increasing methodological power. While a second one is to borrow and combine parts from pure methodologies, thus creating mixed methodological approaches (Patton, 1995).

We believe that there are strengths and virtues in the ideal of pure implementation of each approach. But there are also some important benefits to be gained by mixing methods and approaches.



For example when dealing with a program in which some of the variables to be examined are unclear. It is possible to design an experimental design for collecting some qualitative open-ended data from the program participants.

The analyst may superimpose quantitative scales and dimensions onto qualitative data. Thus in the data analysis phase of a project the evaluator may decide to convert qualitative descriptions into quantitative scales that can be statistically manipulated.

A variety of mixes may then be done, such as mixes of data type, inquiry mode and analysis methods. In order to make the choices available more clearly, we list below some possible combinations for the creation of a flexible evaluation design (Patton, 1995):

1. Experimental Design – Qualitative Data Collection – Content Analysis
2. Experimental Design – Qualitative Data Collection – Statistical Analysis
3. Naturalistic Inquiry – Qualitative Data Collection – Statistical Analysis
4. Naturalistic Inquiry – Quantitative Measurement – Statistical Analysis

It should be mentioned that it is not possible to combine all the methodological approaches in a program. Certain designs pose constraints that exclude other possibilities. For instance, as mentioned above, it is possible to convert detailed qualitative descriptions into quantitative scales for the purposes of statistical analysis. However, it is not possible to work the opposite way, to convert purely quantitative methods into detailed, qualitative descriptions (Patton, 1995).

The choice of the appropriate methodological combination for the evaluation of a program depends on several factors, such as the purpose of the evaluation, what the stakeholders want to know, the funds available and the skills of the evaluator. It is certain that different methods produce quite different information. The challenge for the evaluator is to find out which information is most needed and most useful in a given situation, and then to employ those methods best suited to producing the needed information (Patton, 1995).

## 6. Conclusions

In this paper we have attempted to gather and summarize the basic methodologies in program evaluation. We have presented the major methodological approaches. After impressing on the main characteristics, advantages and weaknesses of the approaches and methodologies we proceeded to a comparative assessment. Eventually, we proposed Triangulation and the appropriate mixing of pure methods as two new strong methodological approaches.

From the above analysis we can conclude the following:

The impact of full coverage socio-economic programs is difficult to assess with confidence because the nature of such programs precludes the use of comparison groups. Full coverage programs generally are evaluated by using reflexive controls to compare preprogram and post-program outcome measurements. Designs range from simple before/after test evaluations, in which there is only one measurement before and one after program implementation, to time series evaluations, in which there are multiple measurements before and after the intervention is in place. Time series designs are much more powerful than simple before/after designs in estimating net effects. In evaluations with only two measurements, it is almost impossible to differentiate net from gross effects.

Cost Effectiveness analysis judges the efficiency of the intervention by quantitative comparison with one or more other interventions. It favors an objective considered to be a priority. It is particularly well suited to ex post evaluation.

Cost Benefit analysis judges the efficiency of the intervention by taking into account all its effects and by making a quantitative synthesis. Cost Benefit analysis can judge an intervention in the absolute, without any comparative reference to other intervention. It is generally used ex ante, but all the conditions required for its efficiency application are rarely met.

Qualitative evaluation data may be presented alone or in combination with quantitative data. Recent developments in the evaluation profession have led to an increase in the use of multiple methods including combinations of qualitative and quantitative data.

We have concluded that mixing parts of different approaches is a practical mandate to gather the most relevant possible information to inform decision makers and stakeholders. In practice, it is altogether possible and often desirable to combine approaches.

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## Internet sites

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