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# Strategy and Coherence of a Program of Regional Development: a Methodology for Synergy Evaluation

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**ABSTRACT:**

This paper presents a methodology to evaluate both the coherence and the strategic value of a program of regional development. It also shows an empirical application to a real case. Only the basic aspects of the methodology will be presented, those which are focused in the individual valuation of the degree of synergy inherent in the objectives (or actions) between them, using a *Delphi* technique. A Weights Matrix can be constructed through it according to the degree of synergy assigned to different objectives (actions). Taking as a base this previous matrix and also using the hierarchical conglomerates analysis as a complementary technique, it is possible to set up a ranking of the objectives which serve as a medium to appreciate the strategic value inherent in the proposed programming. Then, the objectives can be differentiated as basic, intermediate, final or independent according with their degree of influence or dependence. The Community Support Framework 1994-1999 for the Spanish objective 1 regions serves as a mean to illustrate the methodological application.

## 1. Introduction

One of the fields of knowledge that has experienced a great interest in recent years in Europe has been Regional Economics. This fact is found to be very connected to the strengthening, by the European Union, of the regional community policies[1]. In the Spanish case, the Community has influenced a very important positive turn of the regional policy which has emerged not only as a reinforcement of the role of the regional public authorities, but also as an the introduction of selectivity criteria, and, above all, in the provision of mechanisms of actions´ control[2].

The reform of the Community´s Structural Funds established in 1988, together with the more detailed changes of 1993, set up a new legal framework which has assumed an important change in the direction for the Community´s regional policy and for the regional policies of the Member States from two points of view. First, from a quantitative perspective, with the doubling in real terms of the Funds devoted to the regional policies. Second, from a qualitative point of view, with the introduction of the four basic principles of the behaviour of Structural Funds: *concentration, cooperation*, *programming,* and *additionality* (Comisión Europea, 1996).

The principle of *programming* was clearly strengthened from 1988 onwards. The duty of making plans of development for the different objective regions and the need to design an strategy of regional development coherent with a correct diagnosis of the regional problems substituted the old intervention forms characterized by the mere sum of individual projects. Additionally, the need to undertake processes of appraisal, monitoring and evaluation of the actions has been particularly intensified in the context of this new legal Framework of Community´s Regulations[3].

Evaluation is particularly relevant and constitutes the main purpose of our paper. We propose a methodology to valuate the degree of internal coherence which exists between the objectives of the regional policy detailed in a regional development plan. In short, the Community Support Framework (CSF) 1994-1999 for the Objective 1 Spanish regions is analyzed through an exercise applied to the on-going evaluation for the period 1994-1996[4].

The paper framework is the following. The second section will emphasize the main strategic lines of regional programming in Spain contained in the Regional Development Plan (RDP) and in the CSF 1994-1999. The third section discusses the presentation of the basic features of the proposed methodology. The fourth section presents the main results derived from the empirical application to the Spanish CSF 94-96. Finally, a fifth section will present the main conclusions.

## 2. From the RDP to the CSF 1994-1999: the most significant features of the strategy of regional development.

The Spanish Regional Development Plan (RDP) constitutes the basic programming document for intervention in the issue of regional policy for the Objective 1 regions. It is based on a well-documented and rigorous regional diagnosis about the reality of these lagged regions (Ministerio de Economía, 1994)..

The designed actions were proposed from a double perspective: the *multi-regional level*, mainly managed for the Central Government and the purely *regional level*, where the autonomous governments played the basic role.

The strategy of the RDP 1994-1999 lacked of criteria, except for the purely financial ones, that would permit the establishment of priorities. In fact, the strategy was summarized in seven big axes in which the different arranged actions were assembled, led mainly by the provision of infrastructures. This strategic design was clearly a follow-up of the previous programming stage 1989-1993 (Mancha and Cuadrado, 1996 ; Cuadrado *et al.* 1995).

After a process of external evaluation of the RDP and a long period of bargaining between the Spanish and the Community authorities, the intervention concerning regional policy in the Objective 1 regions was materialized in the CSF 1994-99 approved in June of 1994. The most important difference is the turn with respect to the previous CSF (1989-1993) and to the RDP 1994-1999. The main differentiating elements can be summarized as follows:

i) The strategy was set forth in a more precise way than that of the RDP.

ii). The axes devoted to the *support of productive system* and *the valuation of human resources* were emphasized, with a more balanced distribution of the financial resources.

iii) The strategic objectives were more clearly specified, positioning in a decided manner for actions aimed at favouring endogenous development.

iv) A more integrated approach of the different Structural Funds was designed, to favour the attainment of synergetic effects.

In short, the strategic principles of intervention were based on the promotion of measures directed to increase the competitiveness of the productive system (R + D, training, etc.), thus increasing the territorial concentration of the aids taking into account the double strategic level: the *multiregional* and the *regional* one.

The CSF 94-99 established as a **final objective**, *the real convergence of income and employment* to which were linked other **global objectives**, such as the *improvement of the productive system; the improvement of the living conditions and valuation of human resources; the territorial integration and articulation and the sufficient provision of infrastructures directly linked to the productive system.* These objectives were developed, likewise, in a series of objectives with a more explicit content which could be designated as *instrumental objectives*. Generally, these come close to the axes and subxes of the different programming documents (see table 1).

| Table 1 |
| --- |

## 3. Evaluation of the synergies: methodological and practical aspects.

### 3.1 The bases of the methodology: an overview.

The analysis of the internal coherence of a program of development is based on a lot of preliminary reports and on the own document of programming. This document contains a detailed regional diagnosis, a set of strategic principles that guided its elaboration and

the main objectives to reach.

Once the diagnosis, the strategy, and the objectives of the program of development are identified and valued, the analysis of its internal coherence as well as the synergies can be carried out by means of a technique at the same way as based on a square matrix which contains the quantitative values of the interrelations maintained between the different objectives of the program. We can order these objectives in the so-called *tree of objectives* of the program to clarify two important aspects:

i) The intensity and direction of the functional links existing between the subaxes-objectives included in the program, i.e., the global integration of the program.

ii) The characterization of the different subaxes-objectives, adopting as a classification criterium the function which each one of them exerts with respect to the rest; i.e., to reinforce other objectives, to absorb effects that come from other actions, etc.

The analysis of the synergies of a program of development could be made according to a sequence of three stages:

i) Making of a new *tree of objectives* of economic policy including the different subaxes and actions of the program. In order to facilitate the interpretation of the results it is necessary to take into account their strategic priorities and trying to identify clearly the correspondence between the objectives and the axes of the programming document.

ii) Quantitifying of the direct interrelations that have taken place between objectives.

iii) Classification of the objectives in accordance with the obtained results.

The correct understanding of this technique to analyse the synergies in each of these stages needs their application to a real case, as we shall show in the following section.

3.2 The method.

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Related to the first stage, we have proceeded to make a *tree of objectives* which contain four big groups: *Territorial objectives*; *objectives related with the productive system; objectives related with the endowment of collective equipment ( social capital); and objectives related with human capital* (see table 1).

Starting from this *tree of objectives*, one may proceed to the establishment of a series of quantitative valuations of the degree of the relationship between each one. For this, a technique is used to survey the experts that can be included within the Delphi technique[5].

The Delphi technique is a method of gathering opinions from a group or panel of experts using the questionnaire as the basic tool. This group of experts shares their opinions or valuations, mainly in a quantitative manner, to a series of questions from a questionnaire. Those valuations can be changed in successive rounds of consulting if the expert considers it appropriate in accordance with the distribution of the answers from the rest of the group.

Therefore, it is a method where a certain interaction exists between members of the group, although one of the main features and advantages is the anonymity in which they answer the questionnaire. So that a consulted expert could change his mind not necessarily according to the individual answers but to those of the group. The possible influence derived from positions of leadership is avoided.

The first step is to carry out the selection of the panel of experts. Generally, the number is kept relatively small (between 10 and 30)). The group of experts share a common, rich, and -more or less- direct knowledge of the regional economy on which the program of regional development is based. For this reason, the panel is usually formed by two large groups of people:

    i) Independent experts. Professionals or academics not directly related with the object of evaluation program but who, for their knowledge of the regional economy, can adequately value the synergies from the proposed objectives or

actions.

ii) Civil servants. These can be consulted members from the local, regional, or national administration in charge of the design or planning of the programs of development in progress.

The division of the group of experts in these two categories permits one to study the differences between the answers obtained by both groups and their subsequent evolution.

The making of the questionnaire and its possible transformation in the successive rounds of answers are another important point in the methodology. The research co-ordinator of the evaluation builds the *tree of objectives* starting from the base documents[6]. This group of objectives can also be outlined through questionnaires but reality discourages this option since it would assume the establishment of numerous consulting rounds which could provoke a gradual reduction of the participation or of the interest of the experts. Moreover, it is necessary to keep in mind that the basic objective of this methodology is the quantitative valuation of the synergetic effects from the objectives of proposed regional development and not the setting up of the objectives themselves.

The experts are requested to valuate the relationship between objectives according to the influence of each objective on the remaining ones[7]. The valuations must be assigned according to the following scale:

- Very important influence: 5
- Significant influence: 3
- Low influence: 1
- No influence: 0.

The results of this exercise for the Spanish CSF 1994-1996 appear in the matrix of table 2, which reflects the interrelationships that have been produced between the 23 selected objectives[8]. The reading of the matrix can be made by row. For instance, the objective

4.2 (Valuation of Human Resources specially directed to the needs of the productive system) has been able to exert an important influence on the column-objective 2.7. (Competitiveness of the productive system), significant on the objectives 2.3 (Promotion of the R + D), and 2.10. (Promotion of the productive sectors), and low on the objectives 1.4. (Improvement of the environment), 2.4. (Introduction of new forms of productive organization), and 2.9. (Location of preferential activities).

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│                          Table 2                             │
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If the matrix is read by column, it will obtain the received effects (or their sensitivities) of each objective coming from the attaining of other objectives. For example, the objective 4.2 (Valuation of Human Resources directed to the needs of the productive system) has received important effects from only two objectives: 2.10 (Promotion of the productive sectors) and 3.1 (Improvement of the endowment of educational infrastructures).

It is relevant to specify that in this analysis only the direct interrelations between objectives are valued. The indirect effects are excluded to reflect the initial interrelations between objectives more clearly[9].

These quantitative valuations correspond exclusively to supply-side effects between the objectives. Therefore, the "demand" interactions which generate an objective over others are excluded. For instance, the reinforcement of the infrastructure contributes significantly to the promotion of the productive sectors, but these effects have been eliminated in the analysis, because the exercise paid attention only to the valuation of the most durable effects, such as the improvement of locational attractiveness, the improvement of competitiveness, etc.

The results must to be interpreted by taking the total values reached in each objective in the following way:

-*Sum by rows*: It represents the capacity of an objective to favour the performance of the group. It reflects the degree of influence or synergy which contributes to the rest of

the objectives.

-*Sum by columns*:  It shows the sensitivity of the objective in question to respect the attainment of the rest, that is to say, the effects or synergies received.

-*Sum of rows and columns*:  It shows the degree of interdependence of the objective within the *tree of objectives*, either by favouring the attainment of the rest; or by receiving the effects of the group, or both effects at the same time.

-*Differences in rows and columns* (sum of rows minus sum of columns):  The difference could give rise to three possible results:

> i) Positive difference: It shows the prevalence, in the objective in question, of its capacity of influence over its sensitivity.
>
> ii) Negative difference: In this case, its aspect as receiver of effects (sensitivity) prevails over its capacity of stimulating the rest of the group.
>
> iii) Null difference or of very small value: Both events (influence and sensitivity) have a similar importance (very small, intermediate, or very large) in the objective being valued, for which it will be necessary to exam the sums separately in order to interpret the results correctly.

If the results are plotted, representing in the horizontal axis the differences between rows and columns and in the vertical axis the sums of both, we can be made some considerations about the degree of synergy and the dependence of the group of objectives. According to the location of the objectives four basic zones are identified, once a certain relevance threshold is fixed[10] (see figure 1):

> i) *Upper zone to the right*: It shows those very integrated objectives highlighted for their capacity to influence other objectives.
>
> ii) *Upper zone to the left*: It shows those objectives also very integrated, but with a notable degree of dependence.
>
> iii) *Central zone* (above the relevance threshold): It comprises objectives where the synergy is relatively important and shows up because of its power of influence (position to the right) or for its moderate degree of dependence (position to the left).
>
> iv) *Zone below the relevance threshold*: It contains the objectives with very little degree of synergy, either for its limited capacity of influence or for its reduced

dependence. Since it concerns independent objectives, the results depend basically on themselves, with these effects not influencing the rest of the actions or objectives. This kind of objectives will be important as long as its own goals are pursued.

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Figure 1

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The technique of *hierarchical conglomerates* (cluster analysis) has been applied to the weight matrix in order to establish some groups of subaxes-objectives with an homogenous degree of synergy. In short, the cluster analysis classifies objects (objectives in our case) into groups--according to a set of available information about them (the information contained in the matrix)--in such a way that the objects of a same group keep the largest possible degree of similarity (*internal homogeneity*) and that the various groups are the most disparate to each other as possible *(external heterogeneity)*.

The application of cluster analysis to this methodology takes into account the following aspects:

  i) The main purpose is to avoid the grouping of objectives in a strictly subjective way. Cluster analysis allows for a less subjective selection of similar and disparate objectives with respect to the capacity of influence and sensitivity.

  ii) The cluster technique works by setting-up a number of groups (clusters) equivalent to the number of defined objectives through an iterative procedure of forming successive clusters until a final grouping is reached.

  iii) Finally, the *dendogram* (or graphic representation of the measured distances between objectives) allows the selection of clusters as reflected in the figure 2.

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Figure 2

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**4. Main results.**

The application of the exposed method to the Spanish CSF (1994-1996), whose main results have been presented in table 2 and in figure 2, raises the following remarks:

1. A first group of objectives is characterized by its high degree of synergy and, at the same time, for its notable dependence on the rest. These objectives form a cluster with a marked *horizontal* character:

      -1.2. To refrain the problem of demographic desertification.

      -2.7. Competitiveness of the productive system.

      -2.10. Promotion of productive sectors.

2. With a minor degree of synergy and dependence a cluster has been configured only with the objective 2.9; Location of preferential activities.

3. The third cluster is constituted by three objectives which, although having an important synergy, their influence is not significant with respect to their dependence, and viceversa. Included are the following:

      -1.4. Improvement of the environment.

      -2.2. Regulation of the quantity and improvement of the quality of water.

      -2.3. Promotion of R + D.

4. The fourth cluster is formed by four objectives which have an important capacity of influence, but with a small degree of synergy:

      -1.1. Territorial articulation and integration.

      -2.5. Promotion of investment and business services.

      -3.1. Improvement of the endowment of educational infrastructures.

      -4.1. Development of the new Professional Training System.

5. With similar features to the previous group, a wide culster of objectives with very little important synergy is configured, including the following:

      - 1.3. Improvement of the urban environment.

      - 2.4. Introduction of new forms of productive organization.

      - 2.6. Adjustment and renewal of productive structures.

      - 2.8. Improvement of the factors quality.

- 2.11. Promotion of communication infrastructures.

- 3.3. Improvement of the endowment of other collective infrastructures.

- 4.2. Valuation of human resources directed to the needs of the productive system.

6. Finally, the last cluster is constituted by four independent objectives, as much for their limited dependence as for their reduced influence. They include the following:

- 3.2. Improvement of the endowment of health infrastructures.

- 4.3. Integration in the labour market of groups of workers with specific difficulties.

- 4.4. Promotion of the equal opportunities.

- 4.5. Improvement of the levels of basic education.

The appraisal of the internal coherence of the program can be made by ordering the objectives according to their character final, basic, intermediate or independent. The procedure can be made transforming the original values of the sum by rows and the sum by columns merely calculating their differences with regard to the average value of the matrix (12, 12)[11].

Figure 3 shows the final result of this procedure, which lead to the following classification, according to the capacity of the objectives to influence or be influenced with respect to the rest:

1. *Objectives of final character* (second quadrant): Those which do not have a great capacity of influence on the rest of the objectives and whose attainment is strongly dependent on what it can achieve in relation with the rest of the objectives. Within this category, the following objectives are included:

-2.7. Competitiveness of the productive system.

-1.2. To restrain to the problem of demographic desertification.

-2.9. Location of preferential activities.

| Figure 3 |
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2. *Objectives of basic character* (fourth quadrant): Those which are not conditioned in

an important manner by the rest, but which are strongly synergetic (determinants) for the attainment of the others. Within this category are the following:

- 4.2. Valuation of the human resources directed to the needs of the productive system.

- 2.11. Promotion of communication infrastructures.

- 1.3. Improvement of the urban environment.

- 4.1. Development of the new Professional Training System.

- 1.1. Territorial articulation and integration.

- 3.1. Improvement of the endowment of educational infrastructures.

- 2.5. Promotion of the investment and business services.

3. *Objectives of intermediate character* (first quadrant): Those which are conditioned in their attainment of an important manner by the rest, but which also have a high capacity of influence. They are including the following:

- 2.10. Promotion of productive sectors.

- 1.4. Improvement of the environment.

- 2.2. Regulation of the quantity and improvement of the quality of water.

- 2.3. Promotion of the R + D.

4. *Objectives of independent character* (third quadrant): Those without a capacity of influence on the rest, but whose attainment also does not depend on the rest. These constitute the most numerous group, since all of the following objectives are included:

- 2.6. Adjustment and renewal of productive structures.

- 3.3. Improvement of the endowment of other collective infrastructures.

- 2.1. Improvement of the efficiency, diversification and promotion of the energy resources.

- 2.4. Introduction of new forms of productive organization.

- 2.8. Improvement of the factors quality.

- 3.2. Improvement of the endowment health infrastructures.

- 4.3. Integration in the labor market of groups of workers with specific difficulties.

- 4.5. Improvement of the levels of basic education.

- 4.4. Promotion of equal opportunities.

With respect to the independent objectives, the position of the first five are clearly different from the last, since although they reach negative values by rows, they are not too high, which is contrary to the situation of the three objectives (4.3, 4.4, and 4.5) which are more linked to the final objective of reinforcing the social cohesion.

Finally, while keeping in mind the results reached by carrying out the two exercises, a hierarchization of the group of objectives from the CSF can be established, according to their specific nature and degree of financial implementation reached, as presented in figure 4.

| Figure 4 |
| --- |

## 5. Final remarks.

The methodology exposed in the previous sections allows to know the degree of interdependence between the objectives of a regional plan of development. Moreover by establishing a final classification of objectives which, together with the analysis of the financial figures of the plan—related to the planned and implemented investment— it is possible to reach general conclusions about the potential multiplier effects of the objectives (or actions).

The application to Spanish CSF shows that the different objectives to reach and the actions which guarantee them, present a character much more balanced than the RDP. Additionally, four objectives: Promotion of the productive sectors (2.10.); Improvement of the environment(1.4.); Regulation of the quantity and improvement of the quality of the water (2.2); and Promotion of the R + D (2.3) show a leadership position within the Spanish CSF strategy thanks to their large synergetic character.

A second group of objectives are arranged which reveal the importance to invest certain weighted actions within the framework for the smooth running of the CSF strategy. This fact, reinforces the role which should be represented in the coordination between the three Structural Funds (ERDF, EGGF, ESF), which in this group seems to be the

objectives of territorial character (1.1 and 1.3), the group of objectives related to the productive system (2.5 and 2.11), with social capital (3.1) and objectives connected with the improvement of the human capital (4.1 and 4.2).

Keeping in mind that the last objective of the Spanish CSF is the achievement of the real convergence, it is clear that the objective related to the improvement of competitiveness of the productive system (2.7) is located in a third level, together with the Location of preferential activities (2.9) and the diminishing problem of demographic desertification (1.2). In short, the CFS will be more efficient if the performances for reinforcement of the productive system (as much from the sectorial as horizontal support) and for improvement of the life conditions (with basic financial actions, indirect in the matter of infrastructures, health, environment, and human capital) work appropriately.

The analysis of the direct interrelations which have taken place in the on-going evaluation between the actions and objectives have shown a coherent strategic design. This suggests that the attainment of good results depends more on their correct implementation than on a change of priorities.

*Table 1. Correspondence between new grouping of objectives, new objectives for sinergy analysis and subaxes CSF-1994-199*

| 1. Territorial objetives |
| --- |
| 1.1. Territorial articulation and integration. |
| *4.1. Rural infrastructures* |
| *1.7. Telecommunications* |
| *1.1. Freeways, highways, and roads* |
| 1.2. To restrain the problem of demographic desertification. |
| *4.1. Rural infrastructures* |
| *4.4. Valuation of local resources* |
| *1.7. Telecommunications* |
| 1.3. Improvement of the urban environment |
| *6.3. Prevention and improvement of the environment* |
| *1.2.Railroads* |
| 1.4. Improvement of environment |
| *4.2. Prevention and restoration of the environment* |
| *5.3. Marine areas* |
| *6.3. Protection and improvement of the environment* |
| *6.1.Water resources* |

| 2. Objectives connected to the productive system |
| --- |
| 2.1. Improvement of the efficiency, diversification, and promotion of energy resources. |
| *6.2. Energy* |
| 2.2. Regulation of the quantity and improvement of the quality of water. |
| *6.3. Protection and improvement of the environment* |
| *6.1.Water resources* |
| 2.3. Promotion of R+D. |
| *4.3 Adaptation of agrarian structures* |
| *6.4.a.Aids to the research, development, and innovation* |
| 2.4. Introduction of the new forms of productive organisation. |
| *2.2.Local development and aid to business services* |
| 2.5.Promotion of investments and business services. |
| *2.2. Local development and aid to business services* |
| 2.6. Adjustment and renewal of productive structures. |
| *5.1.Adjustment, renewal and modernisation of fishery industry* |
| 2.7. Competitiveness of the productive system. |
| *2.1.a. Food industry and structural measurements* |
| *2.1.b. Other industries and craft industry* |
| *5.5. Promotion, transformation, and commercialization* |
| 2.8. Improvement of the factor quality. |
| *3.2 Valuation of cultural resources for tourism interests* |
| *4.4. Valuation of local resources* |
| *5.4. Fishing port equipment* |
| 2.9. Localization of preferential activities. |
| *2.3. Industrial and trade zones* |
| 2.10. Promotion of productive sectors. |
| *2.1.a.Food industry and structural measurements* |
| *2.1.b. Other industries and craft industry* |
| *3.1.a. Aids to tourism investments* |
| *4.3 Adaptation of agrarian structures* |
| *5.2. Aquaculture* |
| *5.5. Promotion, transformation and commercialization* |
| 2.11. Promotion of communication infrastructures. |
| *1.3. ports* |
| *1.4.Airports* |
| *1.6. Others means of transport* |

| 3. Objectives related with the endowment of collective infrastructures |
| --- |
| 3.1. Improvement of the endowment of educational infrastructures. |
| *7.1.Education infrastructures* |
| 3.2.. Improvement of the endowment of health infrastructures. |
| *6.5. Health endowment* |
| 3.3. Improvement of the endowment of other collective equipment |
| *4.1. Rural infrastructures* |
| *6.3. Protection and improvement of the environment* |

| 4. Objectives related with human capital |
| --- |
| 4.1. Development of new Professional Training System. |
| *7.2. Strengthening of technical-professional training* |
| 4.2. Valuation of human resources directed especially to the needs of the productive system. |
| *3.1.b. Specifics needs of the tourism training* |
| *5.6.Fishery training* |
| *6.4.b. Specific needs of the training of R+D* |
| *7.3. Continuous training for the employed* |
| *7.4.a Training and employment promoting for unemployed* |
| *7.4.c Orientation for the labour market insertion* |
| 4.3.Integration in the labour market of group of workers with specific difficulties.. |
| *7.4.c Orientation for the labour market insertion* |
| *7.5.Integration in the labour market (person with difficuties)* |
| 4.4. Promotion of equal opportunities. |
| *7.4.a Training and employment promoting for unemployed* |
| *7.4.b Aids directed to the labour market insertion* |
| *7.4.c Orientation for the labour market insertion* |
| 4.5. Improvement of the levels of basic education. |
| *7.5. Integration in the labour market (persons withdifficulties)* |

Key:

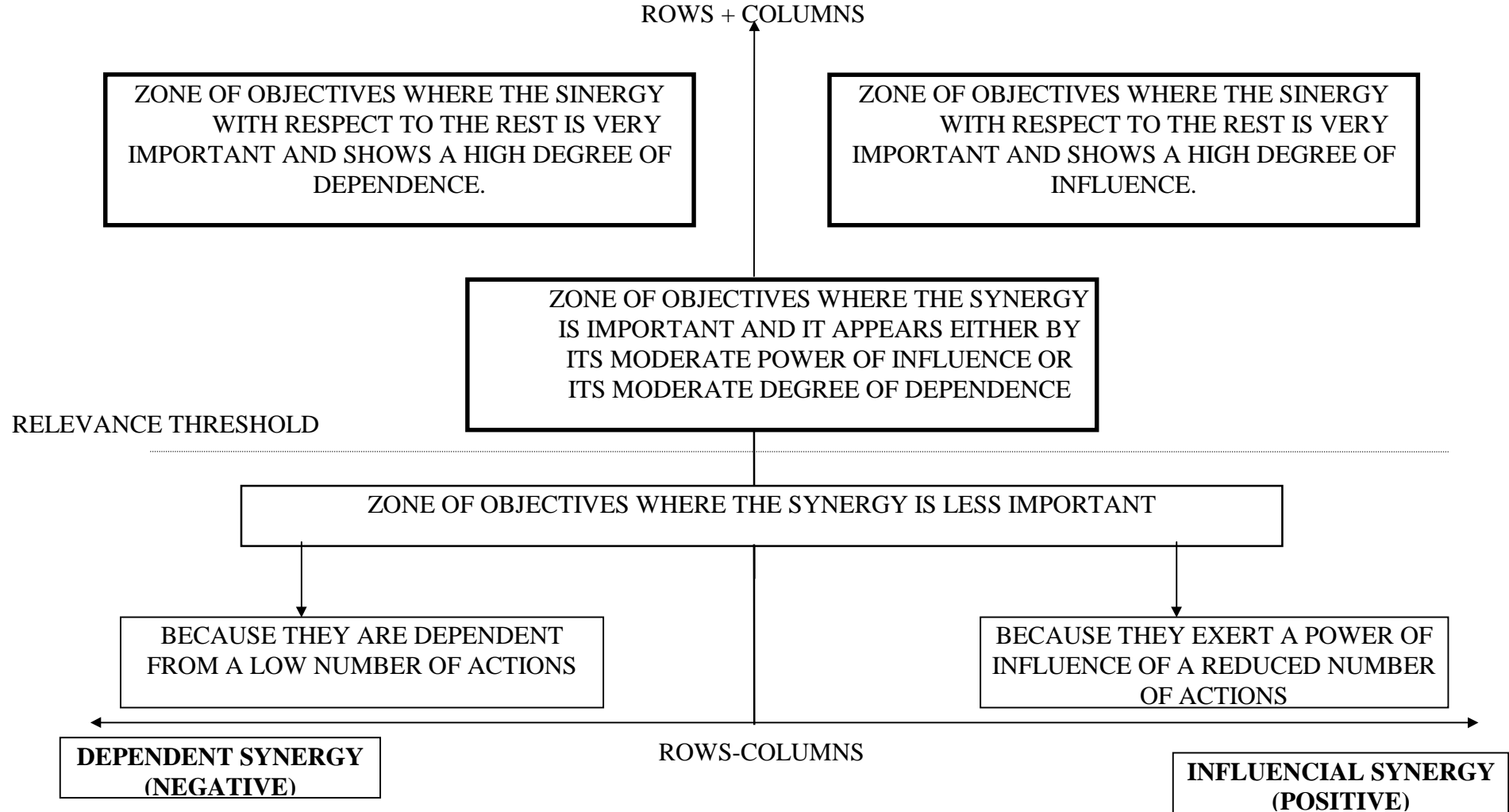| New Grouping of Objectives |
| --- |
| x.x. New objectives for the analysis of synergies |
| *y.y. Subaxes CFS* |

Source: RDP 1994-1999. Own elaboration.

Table 2. Matrix of synergies between objectives of the CFS according to its implementation 1994-1996.

| | 1.1 | 1.2 | 1.3 | 1.4 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 2.7 | 2.8 | 2.9 | 2.10 | 2.11 | 3.1 | 3.2 | 3.3 | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | SUM ROW | ROW + COLUMNS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.1 | | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 24 |
| 1.2 | 0 | | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 46 |
| 1.3 | 1 | 0 | | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 21 |
| 1.4 | 0 | 3 | 3 | | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 21 | 42 |
| 2.1 | 0 | 1 | 0 | 3 | | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 14 |
| 2.2 | 0 | 0 | 3 | 5 | 1 | | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 17 | 33 |
| 2.3 | 0 | 0 | 0 | 3 | 3 | 1 | | 0 | 0 | 3 | 5 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 34 |
| 2.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 14 |
| 2.5 | 0 | 3 | 0 | 1 | 0 | 0 | 5 | 3 | | 0 | 3 | 5 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 26 |
| 2.6 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 3 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 17 |
| 2.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 57 |
| 2.8 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 14 |
| 2.9 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 36 |
| 2.10 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 13 | 57 |
| 2.11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 5 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 17 |
| 3.1 | 0 | 3 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 5 | 3 | 0 | 0 | 3 | 19 | 19 |
| 3.2 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 |
| 3.3 | 0 | 5 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 10 | 16 |
| 4.1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 5 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | | 0 | 5 | 0 | 0 | 21 | 26 |
| 4.2 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 5 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 14 | 22 |
| 4.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 5 |
| 4.4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 |
| 4.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 1 | 4 |
| SUM COLUMNS | 2 | 40 | 9 | 21 | 4 | 16 | 16 | 4 | 0 | 6 | 52 | 3 | 28 | 44 | 3 | 0 | 0 | 6 | 5 | 8 | 5 | 0 | 3 | | |
| ROWS-COLUMNS | 20 | -34 | 3 | 0 | 6 | 1 | 2 | 6 | 26 | 5 | -47 | 8 | -20 | -31 | 11 | 19 | 5 | 4 | 16 | 6 | -5 | 0 | -2 | | |

Source: Own elaboration.

*Figure 1 Ranking of objectives according to the degree of synergy.*

ROWS + COLUMNS

ZONE OF OBJECTIVES WHERE THE SINERGY WITH RESPECT TO THE REST IS VERY IMPORTANT AND SHOWS A HIGH DEGREE OF DEPENDENCE.

ZONE OF OBJECTIVES WHERE THE SINERGY WITH RESPECT TO THE REST IS VERY IMPORTANT AND SHOWS A HIGH DEGREE OF INFLUENCE.

ZONE OF OBJECTIVES WHERE THE SYNERGY IS IMPORTANT AND IT APPEARS EITHER BY ITS MODERATE POWER OF INFLUENCE OR ITS MODERATE DEGREE OF DEPENDENCE

RELEVANCE THRESHOLD

ZONE OF OBJECTIVES WHERE THE SYNERGY IS LESS IMPORTANT

BECAUSE THEY ARE DEPENDENT FROM A LOW NUMBER OF ACTIONS

BECAUSE THEY EXERT A POWER OF INFLUENCE OF A REDUCED NUMBER OF ACTIONS

ROWS-COLUMNS

**DEPENDENT SYNERGY (NEGATIVE)**

**INFLUENCIAL SYNERGY (POSITIVE)**

*Source: Own Elaboration*

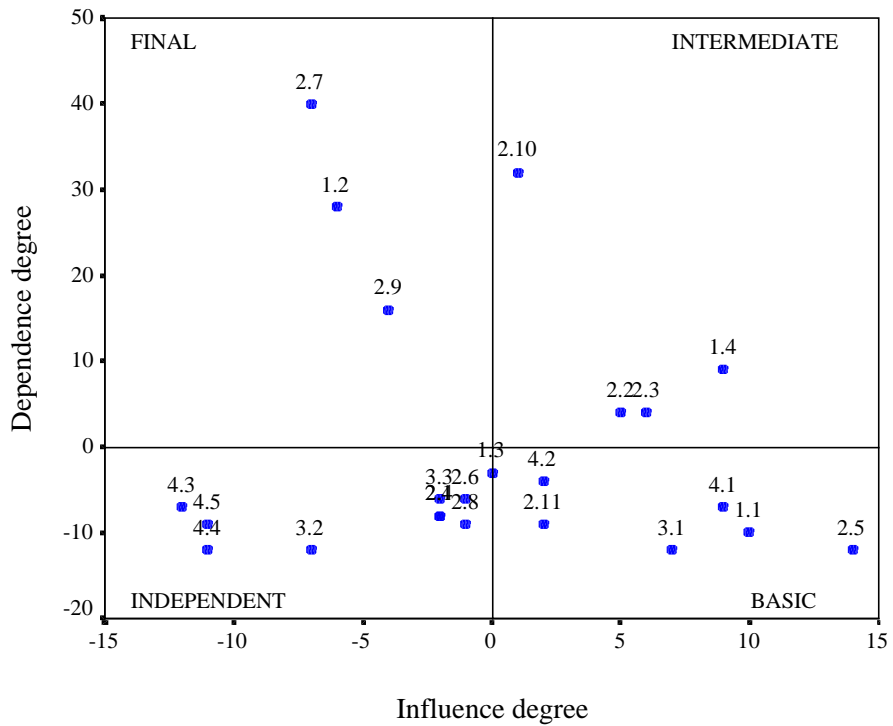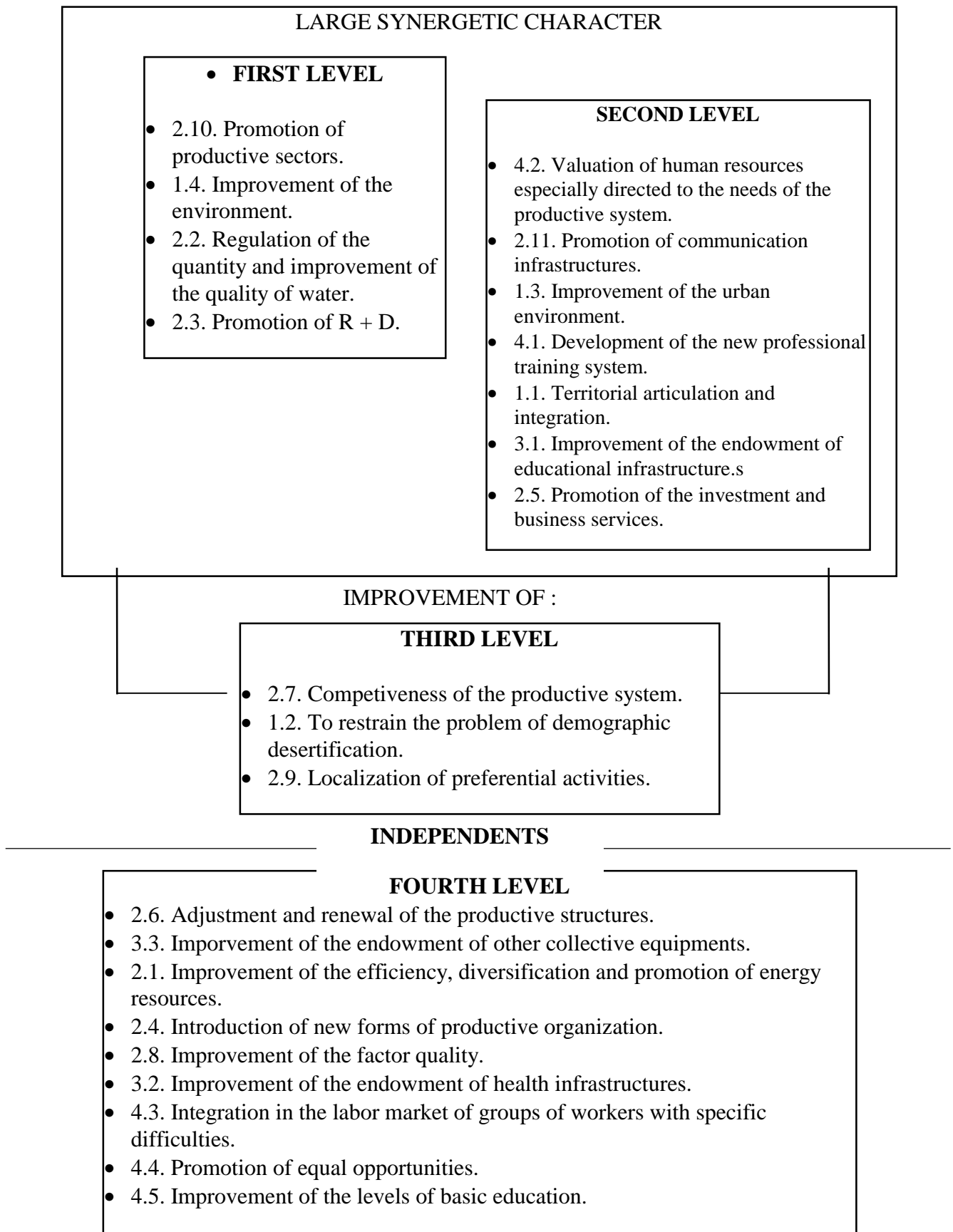*Figure 2. Grouping of the objectives with respect to their synergies*
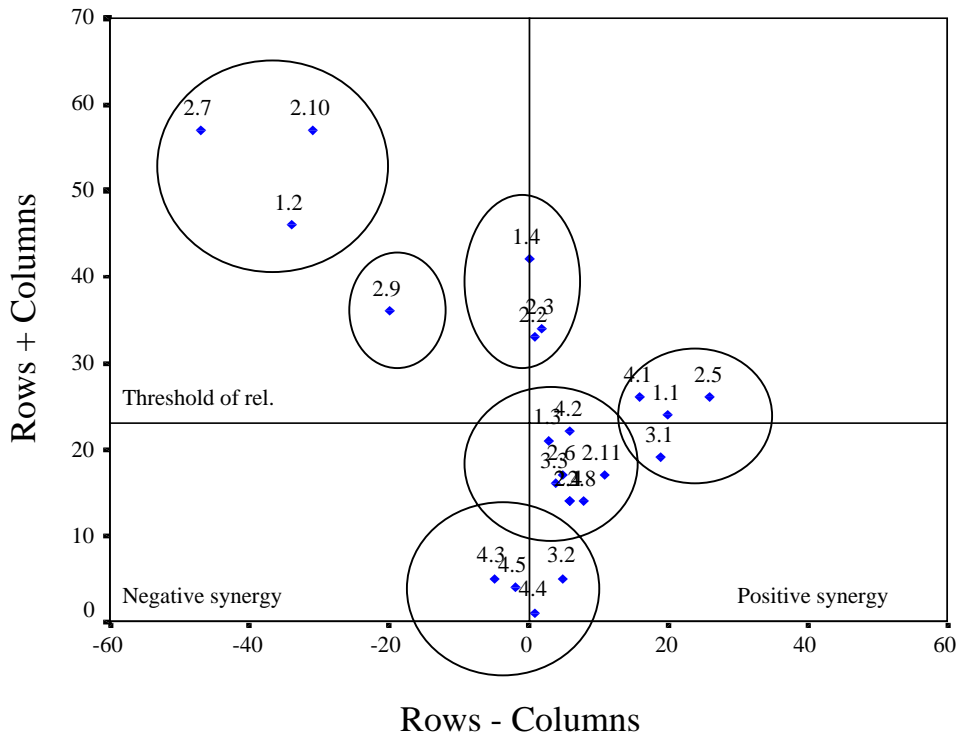


*Source : Own Elaboration*

*Figure 3. Clasification of the objective according to their synergetic character*



*Source : Own Elaboration*

*Figure 4. Final ordering of the objectives according with synergetic character.*

LARGE SYNERGETIC CHARACTER

- **FIRST LEVEL**

- 2.10. Promotion of productive sectors.
- 1.4. Improvement of the environment.
- 2.2. Regulation of the quantity and improvement of the quality of water.
- 2.3. Promotion of R + D.

**SECOND LEVEL**

- 4.2. Valuation of human resources especially directed to the needs of the productive system.
- 2.11. Promotion of communication infrastructures.
- 1.3. Improvement of the urban environment.
- 4.1. Development of the new professional training system.
- 1.1. Territorial articulation and integration.
- 3.1. Improvement of the endowment of educational infrastructure.s
- 2.5. Promotion of the investment and business services.

IMPROVEMENT OF :

**THIRD LEVEL**

- 2.7. Competiveness of the productive system.
- 1.2. To restrain the problem of demographic desertification.
- 2.9. Localization of preferential activities.

**INDEPENDENTS**

**FOURTH LEVEL**
- 2.6. Adjustment and renewal of the productive structures.
- 3.3. Imporvement of the endowment of other collective equipments.
- 2.1. Improvement of the efficiency, diversification and promotion of energy resources.
- 2.4. Introduction of new forms of productive organization.
- 2.8. Improvement of the factor quality.
- 3.2. Improvement of the endowment of health infrastructures.
- 4.3. Integration in the labor market of groups of workers with specific difficulties.
- 4.4. Promotion of equal opportunities.
- 4.5. Improvement of the levels of basic education.

*Source: Own elaboration*

**FOOTNOTES**

[1] See, for instance, Camagni et al. (1991) and Peschel (1997)

[2] It can be consulted Cuadrado and Mancha (1995) or Mancha and Cuadrado (1996).

[3] The intervention of the Structural Funds maintains a more cost-effective relationship. Aid is granted according to socioeconomic benefits shown in mid-term evaluation. All the documents of programming approved by the Commission contain specific dispositions which define the mechanisms of appraising, monitoring, and evaluation. See Art. 6 of the Regulation Framework (CEE) No 2081/93 or the Regulation of Coordination (CEE) No 2082/93 of the Council.

[4] The proposed methodology might be utilized to evaluate programs of development in any phase of programming. Specifically, the authors have used this methodology previously in other works for the Commission. See Cuadrado et al. (1987), (1993), and (1995).

[5] The Delphi technique has had a very wide field of application since its first development in the 50´s, with the first work carried out by the North American armed forces. At present, the marketing, the strategic direction of business, or prospective studies of diverse natures (see Pulido, 1989) use this type of method. Those in the field of regional planning might consult, among others, the works of Gunther and Vallery (1970), Dickey and Watts (1984), Masser and Foley (1987) or Miller (1993). We will not leave out the discussion of the limitation which exist in the Delphi methodology. For this, one might consult Dalkey et al. (1972) or Sackman (1975), among others

[6] Programming Documents, sectorial studies, assessment reports, etc.

[7] For the practical application, the experts' answers were adjusted through evaluation in successive rounds keeping in mind, thanks to previously arranged data bases, the precise actions contained inside each subaxe-objective of the program of development. Specifically, in the evaluation of the CFS 1994-1999, by being an ongoing evaluation, the effective degree of financial execution during the three years was also analyzed.

[8] The objectives correspond to a tree of objectives from the CFS 1994-99 which are explicit in table 1 and which correspond with the axes of development. The quantitative values are the result of the Delphi analysis.

[9] Although this approach allows the appreciation of the basic effects of each subaxe-objective with more clarity, it would be in error not to consider the basic nature of a certain number of actions very important in the priority level of regional development, specifically, in CFS 94-99. The essential function of all the action related with the capital (productive, human or social) is to generate effects in the long run. In order to value this effect, one can employ an alternate methodology based in the models of input-output.

[10] To this effect, we have taken the average of the sum of rows and columns.

[11] The sum by rows reflects the degree of synergy or influence with respect to the group and is plotted in the horizontal axe. The sum by column represents the degree of dependence from a specific objective in relation to the group of objectives; it is plotted in the vertical axe.

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