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# Social ex-post evaluation of local development programs: application of a contingent valuation approach to the Guadix-Marquesado LEADER area (Spain)

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# Social ex-post evaluation of local development programs: application of a contingent valuation approach to the Guadix-Marquesado LEADER area (Spain)

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*Abstract*

*As part of the evaluation of the activity of a district's local development group (LAG), valuation by local society could be a potential element of interest. In this paper we present a social valuation of the LAG activity in the Guadix-Marquesado district (south-eastern Spain), where the contingent valuation method is one of the analytical elements used. A number of results show how the LAG has now become part the institutional network closest to local society, which values the increased welfare that its activity generates slightly more than its actual annual operating expenses. This somehow socially legitimizes the public funding it receives. Other results pertaining to change perception, familiarity with LAG activities and the scalar valuation of its social impact are also included.*

Keywords: Social evaluation, Rural development, Contingent valuation method, Willingness to pay.

*JEL classification:* O43- R11

## 1. INTRODUCTION

Evaluation is a means of forming an opinion of the performance of a particular programme, project and/or the results of its implementation. All the programme or project stakeholders, be they funders, sponsors, developers, managers or beneficiaries, normally have an interest in running an evaluation.

Addressing the topic of local action group evaluation, Esparcia and Noguera (2000) identify several groups that are interested in evaluation: technicians and the LAG itself, national governments and the European Commission, and the local population. The national (and, in the case of Spain, also regional) public administrations and the Commission frequently evaluate the LAGs involved in the LEADER programme. A wide range of evaluation schemes have been set up, based, generally, on the level of goal attainment, some of which are overly complex (European Commission, 2000, 2002 and 2006; Guzmán et al., 2000; ÖIR, 2003). On the other hand, there are papers that conduct partial and indirect evaluations based on investment volume and on some of the investment effects, such as its territorial distribution. Cejudo and Navarro (2003 and 2009) are a good example of this trend.

In other cases, evaluation is based on estimating the value added by developing the programme (OEL, 1999). Generally, such evaluations are external, although self-assessment

schemes have been applied with a more or less participatory approach in recent decades (Cerro, 2000; Esparcia, 2000; Thirion, 2000; Pylkkänen, 2005; Delgado et al., 2007). Even so, the applications of methodological approach of evaluation based on social valuation at the local level are scarce.

As Esparcia and Noguera rightly point out, "valuation" is evidently not the same as "evaluation". When it is the local community itself that does the valuation, however, it can be taken as a criterion, perhaps one of many, for evaluating the implementation of a development programme with the LEADER approach. This is the philosophy that has inspired this paper, which is part of the RURALWELF project. One of the objectives of RURALWELF is to get the local population to valuate the impact of the activity of LAGs across several districts of Spain. It is possibly the first time in Spain that contingent valuation has been used to evaluate the activity of a LEADER programme LAG through direct valuation. We present here the preliminary and interim results of this valuation in the case of the Guadix-Marquesado LAG. We also include other complementary results concerning the evolution of the district over the last decade, perception of changes, scalar valuation of impacts, etc.

### *1.1. Brief description of the district*

Most of the district of Guadix-Marquesado, occupying the eastern part of the province of Granada, lies in what is known as the Spanish Intrabetic depression, composed of a series of fertile plains, depressions and high plateaus whose altitude increases as they stretch westwards, filling the space between the Penibetic and Subbetic mountain ranges.

The LEADER region is composed of 32 municipalities, occupying a surface area of 2,130 $km^2$ and home to a population of 48,769. This district is centred on the small town of Guadix, where 41 % of the district's population lives. It has a very low population density (22.9 per $km^2$). As regards the age-related demographic distribution, 53 % of the population is aged under 40 years and 26.4 % are over 60s. The population of this district is relatively young.

### *1.2. Local action group*

The first rural development organization in the district, the Local Action Group (LAG), was set up in June 1994 to manage the LEADER budget. Initially, it was incorporated as a limited liability company and was composed of all the district town councils and by the regional professional employers' association, composed of 120 local employers. Later, in November 1999, the Guadix District Rural Development Association was created. One of the objectives of this association was to act as the district's local action group (LAG).

The LAG now has 191 members, including town councils, a range of employer organizations, associations and social agents and various institutions, banks, the protected designation of origin regulatory board, the federation of cooperatives, the provincial chamber of commerce, etc.

In contrast to its beginnings, where it had a predominantly political/business make-up, the LAG now includes a wide range of organizations of different types, as well as associations of

social agents, including women, young people, sports and cultural societies (see Ceña and Calatrava, 2006 and, especially, the http://www.comarcadeguadix.com website for more details about the structure and operation of the Guadix LAG).

## 2. METHODOLOGY

To estimate how the local society valuates the LAG's actions, we have used the contingent valuation (CV) method to arrive at a measurement in terms of welfare. To do this, we administered a questionnaire divided into three blocks of questions to the population. The first block of questions dealt with change perception in the district. The second block concerned their knowledge of the existence of and activities of the group and valuation of the LAG (both through scalar and contingent valuation). The third block focused on personal details. The information package offered mid-way through the interviews, before the question on WTP, explained the LAG's actions and commented on some of its key projects of different types. The payment vehicle used was an annual fee. 400 randomly sampled people stratified by subdistricts (Altiplano, Guadix-Marquesado, Montes, Valle del Alhama and Valle del Zalabí) have been interviewed, in a total of 21 of the district's 32 municipalities, having surveyed 135 people in the town of Guadix. The sampling error is 5% for intermediate proportions ($p = q = 0.05$) and 2.18 % for extreme proportions ($p = 0.05$, $q = 0.95$). The interviews were held in spring 2009.

To detect, and if necessary correct, the anchoring and starting point biases, the sample was divided into three subsamples with three different starting points.

Two binomial models on knowledge of the existence of the LAG and its activities as a dependent variable, respectively, have been estimated. The model of knowledge of the activities was only applied to respondents who were familiar with the LAG and will not be discussed here. A Tobit model was also fitted to estimate the value function (WTP as a dependent variable).

The independent variables used were:

- AGE: continuous numerical variable.
- Sex: Male/Female.
- Residence inside or outside the municipality of Guadix (GUADIX)
- Level of satisfaction with life in the locality: Scale of 0 (very unsatisfied) to 9 (very satisfied)
- Marital status (MS): Single, Married, Divorced, Other.
- Educational attainment (EA): Uneducated, Primary, Secondary, Higher.
- Overall perception of development changes over the last decade (7-point Likert scale).
- Monthly *per capita* income (PCI): continuous numerical variable.
- Occupational status: Self-employed, Employees, Non-workers, Unemployed.
- Employed in the agricultural sector: Yes/No.
- No. of household members (HH_MMBERS): continuous numerical variable.

To analyse the valuation of the district over the last decade we used the "industrial activity", "tourist activity", "trade activity" and overall "economic activity" indexes taken from the 2000 and 2010 Yearbooks of the Spanish Economy (with data for 1998 and 2008) published by La Caixa. To estimate the index values for the villages of the district with a population of under a thousand, of which there are, incidentally, very many, we performed the following operation on both the 1998 and 2008 data:

$$I_{c-} = I_{c+} \times \frac{I_{p-}}{I_{p+}}$$

where: c: district

p: province of Granada

+: municipalities with a population of over 1000

−: municipalities with a population of under 1000

This amounts to accepting the hypothesis that, compared with villages with populations of over 1000, the small villages in the district behave, in terms of the indexes, in the same way as the province of Granada as a whole, of which, incidentally, they constitute a high percentage.

To test the significance of differences between the perception of the different changes, as the scales are not numerical, we ran a RIDIT (relative to an identified distribution) analysis according to the theory developed by Bross (1958) and applied by Fleiss (1972), and in conformity with the analytical scheme proposed by Calatrava (1977). To run this analysis, we took the perception of changes to the quality of life as the baseline variable (mean RIDIT=0.5).

## 3. RESULTS

### *3.1. Recent economic evolution*

From 1998 to 2008, the district of Guadix moved down the industry index as compared with the rest of Spain, and this relative decline has taken place, basically, in the larger municipalities, which is precisely where the few industrial activity is concentrated (see Table 1).

Table1

Evolution of some indexes in the district of Guadix, Granada and Andalusia (1998-2008 period)

| | District (mun. pop.>1000) | | District (mun. pop. <1000)* | | District of Guadix* | | Town of Guadix | | Granada (Prov.) | | Andalusia | | Spain |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1998 | 2008 | 1998 | 2008 | 1998 | 2008 | 1998 | 2008 | 1998 | 2008 | 1998 | 2008 | 100000 |
| Industry I | 26 | 19 | 10 | 10 | 36 | 29 | 13 | 9 | 918 | 773 | 10662 | 11389 | 100000 |
| Trade I. | 55 | 54 | 6 | 8 | 61 | 62 | 42 | 42 | 1600 | 1584 | 15762 | 16521 | 100000 |
| Tourism I. | 16 | 22 | 3 | 4 | 19 | 26 | 12 | 16 | 1827 | 1630 | 16275 | 18501 | 100000 |
| Econ. Act. I. | 43 | 37 | 7 | 9 | 50 | 46 | 28 | 23 | 1298 | 1179 | 12644 | 13594 | 100000 |

Source: Elaborated from the La Caixa database

(*) Estimate

The district's trade index, on the other hand, has remained unchanged and even grown slightly: this small upward trend is due to an increase in trade activity in the smaller towns [1].

The evolution of the tourism index indicates a sizeable development of the district's tourist infrastructures, and this is perhaps the biggest economic impact somehow attributable to the LEADER programme actions.

The district's overall economic activity relative index has declined considerably, where this loss can be attributed in its entirety to the relative descent of economic activity in the district capital.

In sum, the application of the LEADER programme has not been able to prevent a relative decline in the economic activity index, which has taken place above all in the municipalities with a population of over 1000 and especially in the district capital, which is unusual in a district with a strong population nucleus.

The major positive change exhibited in the district has been the development of tourism, as discussed.

We can calculate the index units per thousand of the population to illustrate the differences in the indexes more clearly. Table 2 shows the 2008 index values for the Guadix district, Granada and Andalusia.

Table 2: Relative indexes for Spain in 2008 (per 1000 pop.)

| | Guadix District | Granada Province | Andalusia | Spain |
|---|---|---|---|---|
| Industry Index | 0.59 | 0.85 | 1.39 | 2.20 |
| Trade Index | 1.27 | 1.75 | 2.01 | 2.20 |
| Tourist Index | 0.53 | 1.80 | 2.26 | 2.20 |
| Eco. Act. Index | 0.94 | 1.30 | 1.65 | 2.20 |

Source: Own elaboration based on La Caixa data

The figures in Table 2 give an idea of the district's relative backwardness and how, despite the sizeable development in tourism over the last few years, it is still well below the provincial and regional average.

Table 3 shows the percentage variations in the four indexes, where we find that the loss in the district's industry index is greater than for the province and the region as a whole, whereas the increase in the district's tourist activity is sizeable.

Table 3: Percentage variation of the economic activity index from 1998 to 2008

| | Guadix District (%) | Guadix Town (%) | Granada Province (%) | Andalusia (%) |
|---|---|---|---|---|
| Industry Index | -19.44 | -30.76 | -15.79 | +6.81 |
| Trade Index | +1.61 | 0.00 | -1.00 | +4.81 |
| Tourist Index | +36.84 | +33.33 | -10.78 | +13.67 |
| Eco. Act. Index | -8.00 | -17.85 | -9.16 | +7.51 |

Source: Own elaboration based on La Caixa data

[1] This may not be representative of real growth, as the population of some municipalities has dropped under 1000 in the course of the last decade, and this could explain the overall increase. The same applies to the economic activity index.

Remember that the indexes are relative to the whole country, and a drop does not necessarily mean that the different activities have declined in absolute terms, whereas an increment is more often indicative of absolute growth.

### *3.2. Social and institutional evolution*

So much for economic activities; but, as Ceña and Calatrava (2006) indicate, the biggest appreciable impact of the LEADER action in the district refers to the increase in social cohesion and the reinforcement of the district's institutional architecture. Many associations of different types —cultural, social, economic, sports, etc.— have been set up over the last 15 years. A fair number of these associations were clearly incentivized by the development process linked to the LEADER programme. The LAG itself has evolved as an organization, and there has been a very positive expansion in the coverage of its partnership.

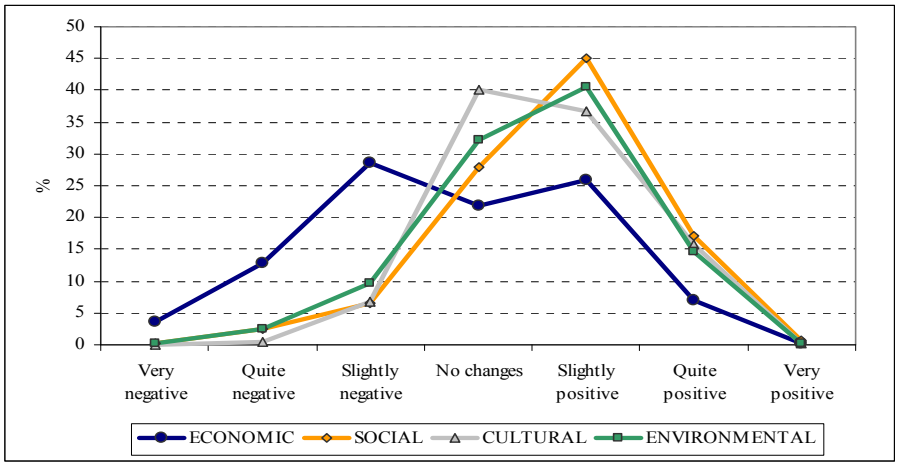
It is not surprising then that, contrary to their perception of economic changes, the region's population perceives the social changes that have taken place over the last decade to be positive, as we will see later.

Based on these social changes, the rural areas of the district of Guadix can be said, from the institutional and social cohesion viewpoint, to be moving closer to becoming a "developing region".

### *3.3. Perception of changes in the district*

Of the survey respondents, 10.78 % consider that there have been major changes in the district in terms of the overall level of development, whereas 11.03 % do not consider that there has been any change. Irrespective of whether they view the types of changes as positive or negative, the majority are of the opinion that there have been a few (52.38 %) or quite a lot of (25.81 %) changes in the district's development level. Figure 1 illustrates how they perceive, in a Likert scale, the different types of changes directionally.

Figure 1. Local perception of changes in district of Guadix in the 1998-2008 decade




Source: Ruralwelf Project Survey

Social changes are more strongly perceived as positive than any others. The perception of economic changes is the worst: 44.97% of the population are actually of the opinion that there have been negative changes, 21.86% that there have been no changes, and only 33.17% perceive positive changes in the region's economic system, while, of this percentage, most (25.88%) perceive only "slightly positive" changes.

As regards the changes in the quality of life in the village where they live, the responses contained in Table 4 indicate a clear propensity to perceive positive changes.

Table 4: Perception of changes to the quality of life (%)

| Very negative | Quite negative | Slightly negative | No change | Slightly positive | Quite positive | Very positive |
|---|---|---|---|---|---|---|
| 0.5 | 3.01 | 12.78 | 34.59 | 32.08 | 16.04 | 14 |

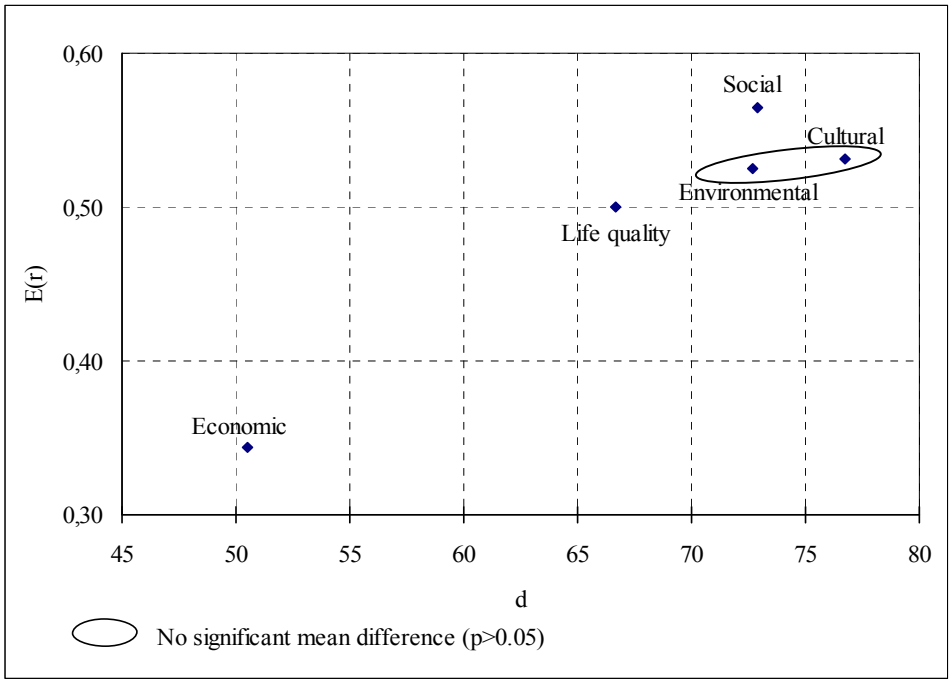
The results of the ridit analysis are summarized in Table 5 and plotted in Figure 2. In Figure 2, *E(r)* is the mean ridit distribution of each variable, and *d* is an indicator of the concentration of responses around that mean (Calatrava, 1977). The high positive perception of social changes contrasts with the negative perception of economic changes and the greater dispersion of responses in the latter case. One might argue that the survey was conducted in spring 2009, when the symptoms of the economic recession, although only just starting to be officially recognized, were clearly apparent to the population, and this may have had a significant effect on the respondents' opinion of economic changes. However, interviewees were clearly asked about their perception of changes over the previous ten years (1998-2008), meaning that, allowing for a minor psychological influence of their current experiences on their perception of the past, there is no reason to think that the early symptoms of the recession have had a major impact on the responses.

Table 5: Significance of the mean differences on the perception of changes

| | Mean RIDIT | Significance (p=0.05)* |
|---|---|---|
| Quality of life | 0.500 | c |
| Economic changes | 0.344 | d |
| Social changes | 0.562 | a |
| Cultural changes | 0.532 | b |
| Environmental changes | 0.525 | b |

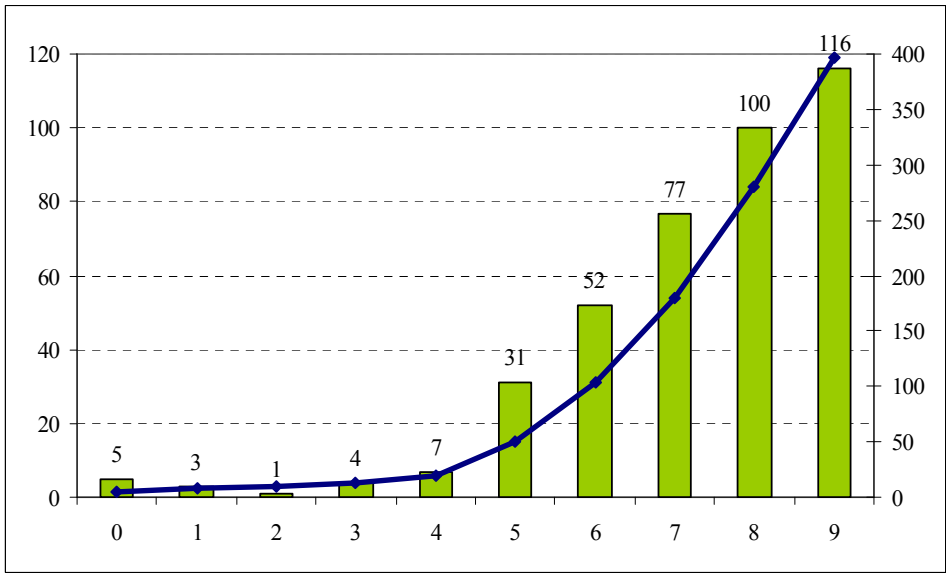
* Different letters indicate significant differences

Figure 2. RIDIT difference of means testing for change perception (Quality of life=0.50)




Current satisfaction with village life is high, where the mean, on a scale of 0 to 9, is 7.31 (Figure 3).

Figure 3. Distribution of the "Level of satisfaction with village life" variable



This mean satisfaction has to be interpreted in the context of what are scalar response ratings, where the midpoint of the scale normally corresponds with a somewhat below average level of satisfaction. Satisfaction in the town of Guadix is greater (7.45) than in the rest of the district (7.14), but the difference is not statistically significant ($p > 0.05$).

### *3.4. Local character*

As regards local character, 85% think there have been no changes or that what changes there have been have been only "slightly" positive; only 10.58% perceive "quite or very positive" changes and fewer than 5% perceive negative changes. The population as a whole perceives a slight increase in local character, but attaches little importance to the perception, possibly because, historically, the district has been clearly delimited, and development processes have failed to further strengthen its character in recent years, as has happened in other regions.

### *3.5. Organization membership*

Membership of organizations is relatively low, although the population appears to have the perception that there has been considerable move in this direction over the last few years.

Trade union membership is 4 %, although only just over half (2.26 %) participate actively. Membership of political groups or parties is 3.76 %, where active participation is sizeable (2.01 %). Of the respondents, 1.5 % are members of professional associations, whereas 4.51 % are members of cultural groups of which a sizeable proportion are active (3.51 %). Because of the sampling error for extreme proportions, however, some of these percentages should be considered as descriptive on size grounds.

### *3.6. Knowledge and scalar rating of the LAG*

Almost two-thirds of the region's population (61.40 %) know that there is a LAG in the district. Of the population that say they know of the group's existence, 70 % are also familiar with the group's activities, meaning that 43.26 % of respondents are acquainted with the LAG's activity. Of all the respondents, 7.7 % have participated or are participating in some activity (course, project, meeting, etc.) organized or managed by the LAG.

These are clearly relatively high awareness figures, considering that rural populations are traditionally apathetic about getting to know and identifying organizations and institutions. In our opinion, these figures indicate that the LAG has "infiltrated" the district and is now part of the institutional network "closest" to the population.

Extrapolating the participation figures to the whole adult population of the district, between 2500 and 3000 people would have had some sort of participatory contact with the LAG. This is a very sizeable figure.

### *3.7. Knowledge factors*

A fitted binomial probit model with the dependent variable "knows or does not know the LAG" has identified the following significant variables ($p \leq 0.05$):

- Better known to population of the municipality of Guadix than to the population of the rest of the district.
- Better known to men than women.
- Better known to married people.
- Less well known to people with primary or no education.

The estimated model (see Appendix 1) is very significant ($p < 0.01$) and has a 70.13 % likelihood of correct classification. In the case of variables with more than one level, the baseline level was changed to output the significance of the differences between all the levels.

The relationship of age to knowledge of the LAG is not significant ($p > 0.05$), but it is as regards knowledge of the activities. In this respect, respondents aged between 30 and 60 years were much more familiar with LAG activities than the under 30s and over 60s. The above is logical because they are the ages at which business and labour activity is generally greater.

### *3.8. LAG valuation*

The valuation on a scale of 0 to 9 of the impact of LAG actions in the region, completed by respondents with previous knowledge of the group's activities only, has returned a mean value of 6.07 with a modal value of 7 and a standard deviation of 2.45. The frequency distribution of this valuation is shown in Figure 4.

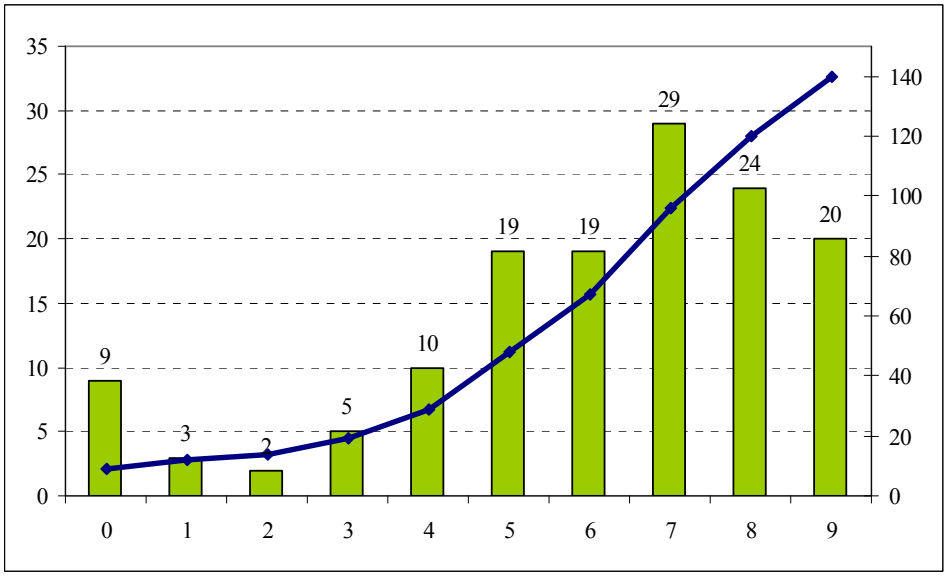



Figure 4. Distribution of the valuation of the impact of LAG activities

The valuation by people that are familiar with the group's activities (43.26 % of respondents) is acceptable. Nevertheless, we should never overlook the constraints of this type of scales as regards courtesy and strategic biases, which, in this particular case, may have an appreciable influence.

We have not found a significant relation between the scalar value assigned, and any of the independent variables considered in the models.

### *3.9. Contingent valuation*

Only 28.07 % of the respondents say that they would be willing to pay a monthly fee to maintain the LAG if it were necessary. Of the remaining 71.93 %, 29.97 % (21.55 % of respondents) are protest responses, whereas the others are real zeros, that is, respondents who either do not value the service offered by the operation of the LAG at all or cannot afford to pay a fee.

The mean per capita WTP was 10.90 €/year with a standard deviation of 23.62. The means for the three starting points were 8.15, 7.28 and 11.42, meaning that the anchoring and starting point biases, although existent, are not very relevant.

The mean was calculated by removing the protest responses. A new exercise estimating the protest responses from the value function is being conducted as part of the Ruralwelf project, although the mean value of the WTP does not vary substantially.

The overall social valuation of the LAG actions can be estimated at 423,520 € per year, which is what the adult population of the district, 38,855 people, would be willing to pay for its operation. This amount would be sufficient to cover the current operating expenses of the LAG team, whose present budget is around 410,000 €. The above result would justify, from the viewpoint of the welfare generated by the LAG actions, the money that society spends on LAC functioning.

### *3.10. Value function*

The WTP variable was the dependent variable considered in the tobit model (Appendix 2) to estimate the LAG's social value function. Per capita income, previous knowledge of the group activity and number of household members turned out to have a significant direct relationship, whereas age had a significant inverse relationship ($p \leq 0.05$). Previous knowledge of the existence of the group does influence the WTP, although the significance level is not high ($p=0.0379$).

WTP is, of course, also related to the scale valuation of the group's activities, although this relation was identified outside the model in order not to reduce its degrees of freedom, as only people previously familiar with the group's activities have evaluated the impact of the group.

## 4. CONCLUSIONS

- In the context of techniques for evaluating local development programmes in a rural district, valuation by local society itself of the activities of a LAG shapes up as a methodological approach of interest to evaluators.
- Within this approach, the technique of contingent valuation appears, among other options, to be well suited for this type of valuations.
- In the analysed district, the population perceives the social, environmental and cultural changes that have taken place in the district over the last decade as slightly positive, and the economic changes, which, except for the tourist sector, have not actually been very sizeable compared with the dynamics of Spain as a whole, as unchanged or slightly negative.
- The Local Action Group operating in the region is known to exist by two-thirds of its population, and almost half of these are also familiar with its activities. From 2500 to 3000 people have participated in one or other of its activities. These figures indicate that the LAG is now part of the institutional network closest to the district's population.
- Factors related to this knowledge are sex, in the sense that it is better known to men, and directly both educational level and residence in the district's capital. Neither age, income level, nor any of the other variables considered are significantly related.
- The valuation of the impact of the LAG activities in the region by the respondents that were previously acquainted with its activities is acceptable (6.07 on a scale of 0 to 9). Variables related to this valuation have not been found.
- The most positive results attributed to the LAG have to do less with its impact on the district's economic growth than with specific social aspects concerning the increase of social cohesion and the development of the local institutional architecture, of which the LAG itself is a clear example.
- More than a quarter (28 %) of the population would be willing to pay a fee to cover the LAG's running costs, where the mean per capita WTP would be 10.90 €/year. The overall WTP is a large enough figure to more than pay for the group's annual operating budget. The above somehow justifies the social expenditure on this heading.
- As regards the value function, the WTP has a sizeable direct relationship to income level and the number of household members and is inversely related to age. Previous knowledge of the existence of the LAG influences the WTP, but not as categorically as the other factors. Additionally, the scalar valuation of the group's activities is, logically, also highly related to the WTP, which gives the analysis conducted a theoretical consistency.

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## APPENDICES

**Appendix 1: Binomial probit model on knowledge of the LAG**

| | |
|---|---|
| Binomial Probit Model | |
| Maximum Likelihood Estimates | |
| Dependent variable | KNOW_LAG |
| Weighting variable | ONE |
| Number of observations | 395 |
| Iterations completed | 5 |
| Log likelihood function | -226.0765 |
| Restricted log likelihood | -263.6799 |
| Chi-squared | 75.20684 |
| Degrees of freedom | 9 |
| Significance level | .0000000 |

| Variable | Coefficient | Standard Error | b/St.Er. | P[\|Z\|>z] | Mean of X |
|---|---|---|---|---|---|
| | Index function for probability | | | | |
| Constant | 1.0028606340 | .30339533 | 3.305 | .0009 | |
| GUADIX | .4113569452 | .14188393 | 2.899 | .0037 | .53417722 |
| CHANGES | -.1625825237 | .87769460E-01 | -1.852 | .0640 | 2.64303800 |
| MALE | .4030960378 | .14304675 | 2.818 | .0048 | .52658228 |
| MS_SINGLE | -.7243725708 | .17593476 | -4.117 | .0000 | .21518987 |
| MS_DIVOR | -.7487737249 | .28591610 | -2.619 | .0088 | .63291139E-01 |
| MS_OTHER | -.8613439654 | .32226861 | -2.673 | .0075 | .58227848E-01 |
| EA_NONE | -1.2942187980 | .24740452 | -5.231 | .0000 | .11898734 |
| EA_PRIM | -.6354276556 | .16832245 | -3.775 | .0002 | .41265823 |
| EA_HIGHER | -.8126879916E-01 | .23648630 | -.344 | .7311 | .11645570 |

Frequencies of actual and predicted outcomes
Predicted outcome has maximum probability.

| | Predicted | | |
|---|---|---|---|
| Actual | 0 | 1 | Total |
| 0 | 76 | 77 | 153 |
| 1 | 41 | 201 | 242 |
| Total | 117 | 278 | 395 |

(pcc = 70.13 %)

**Appendix 2: Tobit model on Willingness to Pay for LAG**

| | |
|---|---|
| Limited Dependent Variable Model - CENSORED | |
| Maximum Likelihood Estimates | |
| Dependent variable | WTP_TOBI |
| Weighting variable | ONE |
| Number of observations | 274 |
| Iterations completed | 6 |
| Log likelihood function | -598.5203 |
| Threshold values for the model: | |
| Lower = .0000 Upper = +infinity | |

| Variable | Coefficient | Standard Error | b/St.Er. | P[\|Z\|>z] | Mean of X |
|---|---|---|---|---|---|
| | Primary Index Equation for Model | | | | |
| Constant | -40.21138898 | 16.419729 | -2.449 | .0143 | |
| AGE | -.5658065978 | .22205874 | -2.548 | .0108 | 43.850365 |
| HH_MMBERS | 5.848302907 | 2.2713824 | 2.575 | .0100 | 3.3029197 |
| PCI | .4485805606E-01 | .11216567E-01 | 3.999 | .0001 | 480.68978 |
| KNOW_LAG | 13.17014507 | 6.3871500 | 2.062 | .0392 | .63503650 |
| | Disturbance standard deviation | | | | |
| Sigma | 40.06978671 | 3.1882531 | 12.568 | .0000 | |

| | |
|---|---|
| Partial derivatives of expected value with | |
| respect to the vector of characteristics. | |
| They are computed at the means of the Xs. | |
| Observations used for means are All Obs. | |
| Conditional Mean at Sample Point | 9.3195 |
| Scale Factor for Marginal Effects | .3469 |

| Variable | Coefficient | Standard Error | b/St.Er. | P[\|Z\|>z] | Mean of X |
|---|---|---|---|---|---|
| Constant | -13.94792483 | 5.5136495 | -2.530 | .0114 | |
| AGE | -.1962585252 | .75550444E-01 | -2.598 | .0094 | 43.850365 |
| HH_MMBERS | 2.028571791 | .78377690 | 2.588 | .0096 | 3.3029197 |
| CPI | .1555969117E-01 | .38871541E-02 | 4.003 | .0001 | 480.68978 |
| KNOW_LAG | 4.568262826 | 2.2008170 | 2.076 | .0379 | .63503650 |