

# Factors influencing the acceptance of ecological set-aside areas in a Swiss mountain region

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**Abstract** - The preservation of a natural environment in agricultural landscapes is an important aspect in societal expectations and in political strategies towards high quality production standards. The farmers' acceptance of agri-environmental policy schemes supporting natural habitats such as payments for biodiversity conservation, however, is not only influenced by economic incentives. We conducted a survey among 120 farmers near Visp, an inner-Alpine mountain area in Switzerland, to assess non economic factors influencing the acceptance of ecological set-aside areas. Results provide evidence for the importance of a) farmers' perceptions of the policy measure, b) farmers' self-concepts, and c) their intrinsic motivation based on the their possibility to make their own decisions. We conclude that the acceptance of ecological set-aside areas may be limited by production oriented and traditional mindsets. These aspects may result in important social barriers in the implementation of politically motivated quality strategies.

## INTRODUCTION

The preservation of a natural environment in agricultural landscapes is important for the population and taken into account for political strategies towards high quality production standards. One aim of Swiss agricultural policy is to substantially increase the quantity and quality of ecological set-aside areas (ESA). The next policy reform (AP14-17) includes new and additional payments for different types of biodiversity conservation which will increase the economic incentives to provide ESA. While economic factors and subsidies are important for farmers to accept agri-environmental policies, the relevance of economic incentives is complex and needs to be qualified by other factors (Schenk et al., 2007). Existing research implies that self-concepts and attitudes (Burton and Wilson, 2006), perceptions, communication, and the possibilities to participate (Schenk et al., 2007; Jahrl et al., 2012) or symbolic capital (Burton et al., 2008) are important factors influencing the acceptance of agri-environmental policy schemes. We here provide an empirically

based analysis of non economic factors influencing the acceptance of ESA based on a written survey among farmers in the region of Visp, Switzerland.

## CASE STUDY REGION VISP, SWITZERLAND

Visp is located in a continental inner-Alpine mountain area in Switzerland, with elevations ranging from 648m.a.s.l. to 4010m.a.s.l. In 2008, active farms in the region cultivated 9.6 ha of agricultural land in average. Thus, farms in this region are small, and part-time farming has a long tradition. The predominant products are milk and meat (from sheep and suckler cows). In Visp and the canton of Valais as a whole, payment schemes for ESA have limited success. The absolute amount of agricultural land enrolled in these payment schemes declined since 1996 by 27%. On the one hand, this can be explained by a loss of agricultural surface through infrastructure (roads, buildings etc.). On the other hand, some of the ESAs were abandoned at marginal sites. Nevertheless, the share of ESA with respect to the total agricultural surface declined by 3%.

## DATA AND METHOD

Based on 20 qualitative face-to-face interviews with farmers in the region, we designed a written survey which was completed in November 2011. In total, 120 questionnaires were returned (response rate 38%). For the analysis in this article, only complete datasets were used (n=100).

To describe the participation in policy schemes, the average response to two questions was used: "Within the last five years, did you cultivate ESA surfaces exceeding the legally requested minimum / surfaces with hedges or trees?" (response scale: none, some, a lot). For the non economic factors expected to influence participation, a set of nine questionnaire items was used, each measured with a five-point Likert scale. A principal component analysis allowed isolating components to be tested for increasing or reducing participation. Finally, the uncorrelated scores for each component (Anderson-Rubin method) were used in a regression analysis.

## RESULTS

The items for the non economic factors were found adequate for a principal component analysis (Kaiser-Meyer-Olkin measure: .699). Three principal components were extracted (eigenvalues >1).

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**Table 1.** Rotated component matrix for non economic explanatory variables.

| Questionnaire item  | Components <sup>a</sup>                          |                                     |   |
|---|--|-------------------------------------|---|
|   | 1<br>Judgment on the effect<br>of policy measure | 2<br>Production oriented<br>mindset | 3<br>Intrinsic motivation<br>/ self determination |
| ambition to breed high quality livestock                    |  | .919                                |   |
| ambition to compete with other breeders                     |  | .912                                |   |
| sufficient production with low land-use intensity           | .737   |                                     |   |
| perceived efficiency of ecological measures                 | .750   |                                     |   |
| paid ecological services: good alternative to market income | .767   |                                     |   |
| close persons like it if I am farming ecologically          | .671   |                                     |   |
| this is my personal contribution to biodiversity            | .660   |                                     | .423  |
| importance of deciding myself about land-use                |  |                                     | .865  |
| I would create / preserve ESA even without legal duty       |  | -.343                               | .604  |

<sup>a</sup> Extraction: Principle component analysis; Rotation: Varimax with Kaiser-Normalization; Factor loadings <.3 are suppressed

The loadings of the items as shown in Table 1 suggest labelling each component as follows: The first component represents a judgment of the effects of the policy measures. The second component stands for the farmer's ambitions for successful production (production oriented mindset). The third component refers to each farmer's intrinsic motivation for improving ecological services as well as his will to make his own decisions about his actions regarding land use.

Each of these components was found to correlate significantly with the participation in agri-environmental policy schemes. As the coefficients in the linear regression model (Table 2) show, a favourable judgement of the effects of these measures has a positive impact on the participation, whereas farmers with a production oriented mindset tend to engage less in these measures. Less important, but still significantly positive is the intrinsic motivation.

**Table 2.** Regression analysis<sup>b</sup> explaining the participation in policy schemes in the Visp region.

| Model                    | standardized<br>coefficient (Beta) | t      | Sig. |
|--------------------------|------------------------------------|--------|------|
| (Constant)               |                                    | 33.689 | .000 |
| 1 Judgment on effects    | .320                               | 3.619  | .000 |
| 2 Production orientation | -.308                              | -3.483 | .001 |
| 3 Intrinsic motivation   | .232                               | 2.626  | .010 |

<sup>b</sup> Linear Regression Model; R-Square=.248

## DISCUSSION AND CONCLUSION

We found three components that contribute to explain the acceptance of ESA in our case study region. Firstly, the participation depends on the farmers' judgment on how effective the policy measure actually is. The more a farmer believes that the set-aside areas enhance biodiversity conservation and the higher his conviction that this is a good thing, the higher the probability of an enrolment in the corresponding policy scheme. This is in line with findings from Schenk et al. (2007) and Jahrl et al. (2012) who also argue that perception plays an important role in farmer's acceptance of ESA. Secondly, a production oriented mindset decreases the probability in participation. In the case study, this is especially revealed in the context of breeding livestock, in accordance with the main agricultural activities and traditions of the region. This coincides well

with the existing research of Burton and Wilson (2006) who show that the farmers' self-concepts are still dominated by production-oriented identities. Thirdly, the intrinsic motivation i.e. the intention to also provide ESA without financial compensation increases the probability in participation. This last component also includes, more importantly, the aspect of self-determination i.e. whether the farmer had the impression that the policy scheme was imposed upon him or whether he could do it on his free will. This aspect relates to the role of communication and how ESA are promoted which represents a important factor in adopting these policy measures (Schenk et al., 2007)

We conclude that production oriented and traditional mindsets, especially with respect to breeders, and the perception of the self-determination in the acceptance of ESA represent important non economic factors in the uptake of agri-environmental policy schemes. Thus, policy makers should take into account that farmers' traditional self-concepts and attitudes might appear as social barriers in the implementation of policy promoted quality strategies.

## ACKNOWLEDGEMENT

This research was partly financed by the Competence Center for Environment and Sustainability (CCES) of the ETH Zurich as part of the MOUNTLAND project.

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