

# Patterns of occupational choice in the Swiss alpine labor market

Chiara Calabrese<sup>1,2</sup>, Stefan Mann<sup>1</sup>, Michel Dumondel<sup>2</sup>

<sup>1</sup> Agroscope Reckenholz-Taenikon ART, Ettenhausen, Switzerland

<sup>2</sup> Institute for Environmental Decisions, Eidgenössische Technische Hochschule ETH, Zurich, Switzerland

## Abstract

*The purpose of this paper is to identify different motivational patterns regarding occupational choice among temporarily employed farmers on Swiss alpine pastures, and to determine the extent to which the different patterns correlate with their social background. Data obtained from 120 face-to-face interviews realized in summer 2011 were analyzed by cluster analysis with the aim of identifying groups of employees sharing similar occupational choice motivation values. Results demonstrate the existence of four groups, two of which are much related to agriculture and two others where the occupational choice is almost completely driven by the search for other benefits such as contact with nature or a break from society. The study provides directions for employers and stakeholders aiming at improving the labor market in this region.*

**Keywords:** Switzerland, alpine farming, cluster analysis, occupational choice

**JEL classification:** J22, J24, J43

## 1. Introduction

For centuries the alpine landscape has been shaped by seasonal transhumance and agricultural land use. Typically inhabited only during the vegetation season, the alpine pastures are managed with traditional techniques but with rather different institutional settings, representing decentralized socio-economic communities. Alpine pastures can be distinguished mainly by two types of ownership and management systems: private pastures where the management is carried out by families owning the land and moving their herds to higher altitudes, and pastures where the management is shared by a farmers' association which creates a common herd and hires the necessary number of herdsman to manage it during the summer. In some instances a public entity at local level may also take over these responsibilities. Hiring staff for this purpose has, despite the additional labor costs, the advantage of freeing the farmers for the summer task of haying in the lowlands to feed the stock over winter.

In 2009, 7197 Swiss summer farms were managing a surface of about 560000 hectares of alpine meadows (Bundesamt für Landwirtschaft 2009) of which, according to Baur (2006), at least 60% is threatened by reforestation. The labor market has an effect on land abandonment and forest re-growth in the Swiss mountains (Gellrich et al. 2008). In recent decades structural changes have taken place in this region, mainly due to a reduction in the income per workforce determined by decreasing product prices and consistently high production costs (Flury et al. 2004). The economic sustainability of the alpine region depends directly on the use of the available environmental resources (i.e. agriculture, forest, tourism) and on the local availability of the necessary labor force (Lehmann et al. 2007). The short job tenure, the relatively low wage by Swiss standards in the agricultural sector and the remote location make for a tight labor supply in this market.

The heterogeneity of the summer farms guarantees a great variation in tasks and working conditions in the alpine farming sector. However, daily work on the alpine pastures is hard work, characterized by long working days as well as comfort and technology restrictions. The working conditions in this seasonal labor segment are not favorable either when compared to other jobs in the

agricultural sector, since the consideration of weekly days off or vacations are the exception rather than the rule and the modest wage is traditionally paid only at the end of the season. Nevertheless, there is a segment in the labor market willing to accept the seasonality and the relatively low remuneration in exchange for experiencing the particular lifestyle of alpine farming. Many of these workers, however, do not return for a second or third season. This means a short-term engagement of employees and the subsequent loss of an experienced workforce and traditional ecological knowledge.

Although this trend in the labor market in the mountain region needs to be placed in the more general context of the decrease in the labor supply throughout the agricultural sector, the availability of specialized workers is increasingly becoming an issue (Werthemann and Imboden 1982; Lauber et al. 2008). This tendency is threatening the sustainable rural development of these peripheral and agrarian communities which play an important role in conserving the traditional landscape as well as the cultural and social values associated with the mountain regions.

A joint-project (AlpFUTUR) is studying the importance, the current situation and challenges of alpine farming in Switzerland. This research on the labor market reports the results of one of the nineteen different sub-projects part of AlpFUTUR.

This paper aims to delineate the considerations which lead individuals to choose to work on alpine pastures and to identify the most frequent sources of problems and possible improvements. We investigate which socio-economic factors help to determine an attractive working place in the alpine agricultural sector and we identify which sociological aspects distinguish different types of laborers. Identifying clear and distinct groups of farmers and assessing their behavioral patterns (lifestyle, traditional, business), we provide valuable information to policy-makers regarding the direction of economic and common good based strategies for maintaining the future sustainability of these extensive and environmentally friendly practices. Moreover, for the employers, a deeper knowledge of the goals and necessities of the labor force employed may allow effective improvements in order to achieve a long-term working relationship.

The manuscript is structured as follows. In the second section the existing literature on the occupational choice process and its determining factors are briefly reviewed. In the third section a description of the survey and an overview of the methodological approach are provided. In the fourth section results are presented, and in the last section a set of final considerations as well as directions for stakeholders are discussed.

## **2 Literature overview**

In the literature the complexity of the occupational choice process is extensively investigated as well as its developmental nature, which extends over many years and is determined by several experiences which narrow the range of future alternatives and thus influence the ultimate choice of an occupation (Blau et al. 1956). In the last decade attention has been drawn to the role of «identity», which is not only represented by individuals' motivations to do things, capacities, habits and environment (Kielhofner 2007) but also by a complex system of meanings in which individuals consciously link their motivational values and competences to acceptable career roles (Meijers 1998). It is often reported that the development of such a context of motivational values begins during childhood and adolescence through increasing differentiation among preferred activities, interests, competences, and values (Holland 1985; Savickas 1985; Blustein et al. 1989; Skorikov and Vondracek 1998; Nauta and Kahn 2007). Nowadays the occupation is often viewed not only as the major source of income, but also as the main form of social integration and identity expression, meaning and self assessment (Raskin 1985; Christiansen 1999; Solberg et al. 2002). In the field of agricultural socio-economics, the complexity of farmers' behavior as well as the diversity and the influence of their goals in their management decisions have been intensively investigated during the past decades. Starting with the work of Ashby (1926), one of the most common approaches in the field was the collection of information from interviews used for the identification of different groups of farmers based on common behavioral patterns, goals and motivational values. Gasson (1973) also analyzed why farmers behave as they do by identifying and describing four main driving characteris-

tics: «instrumental» (to do with making money, expanding the business), «social» (gaining prestige, supporting the family, maintaining a tradition), «expressive» (self-respect, creativity, responding to challenges) and «intrinsic» (independence, enjoyment of work tasks, lifestyle preference). Her work inspired several subsequent researchers throughout the world to examine the objectives and values of farmers, many of which focus on the combination of farmers' entrepreneurial choices and personal goals (Harper and Eastman 1980; Gillmor 1986; Fairweather and Keating 1994; Perkin and Rehman 1994; Austin et al. 1998; Beedell and Rehman 1999; Willock et al. 1999; Berkhout et al. 2010; Gillespie and Mishra 2011). Less attention was drawn to why individuals enter or remain in the farming sector (Kerridge 1978; Coughenour and Swanson 1988; Maybery et al. 2005).

Regarding the labor segment of Swiss alpine farming, the empirical evidence relating to occupational choice is much less plentiful. Rudmann (2004) has examined the alpine labor force as a whole and identified the workload as well as the sensitivity of the employer towards the particular needs and requests of the employees as important aspects of long-term working relationships. At the same time, there is reason to assume that the socio-economic background of alpine workers is much more diverse and heterogeneous than the socio-economic background of farmers. Farming is almost necessarily a lifetime occupation. Working on an alpine farm during the summer can also be a regular pattern in a professional biography. However, the non-continuous nature of alpine work opens this occupation to people searching for a unique experience. This option is made more attractive by the fact that work on an alpine summer farm is often carried out in very remote locations. This creates the option of making an extreme difference to the more usual, urban occupations chosen at most times.

The different institutional settings between farming in the lowland and an occupation on an alpine farm lead to the hypothesis that the alpine labor force can only be understood once different segments are considered. The least necessary distinction will be between a segment that considers alpine farming as a continuous part of their occupational identity and another segment which considers alpine farming as a lifestyle-related interruption of a non-agricultural

career in a more urban context. This hypothetical distinction among two main kinds of employees: those choosing alpine farming as their life-occupation and those choosing it as a short-term experience need to be confirmed and quantitatively described with empirical evidences. This study provides an analysis which on the one hand improves the information available regarding this peculiar labor segment and on the other hand supports predictions on its future developments.

### **3 Method**

As previously introduced, this study is based on the hypothesis that motivational values towards occupational choice in the alpine farming sector have at least two basically different social origins and derive from different backgrounds of experiences. If this hypothesis is correct it is logical to expect that individuals can be grouped based on the values they connect with their occupational choice. With the aim of identifying a typology of farmers working on alpine summer farms, data collected with a survey were analyzed with cluster analysis.

#### **3.1 Sampling of participants**

Data were collected by means of face-to-face interviews carried out in July and August 2011. 50 alpine summer farms were selected from cantonal databases by means of computer randomly generated ordering numbers. The survey sample consisted of 120 interviews with employed laborers. Once selected from the cantonal databases, the manager of the summer farm was contacted by phone in the spring and asked about his willingness to participate in the survey. All the people working on each farm were interviewed. Interviews were conducted orally and directly on the summer farms as normal conversations but following a standardized questionnaire which allowed the respondents to freely discuss additional related topics. This permitted a participation rate of 100 per cent and good data quality, although the high transaction costs necessarily constrained the size of our sample. Questionnaires were based on the existing literature and were discussed with experts in the field. In order to consider the influence of the location and the different management systems, the interviews

were realized in Canton Bern, where private ownership dominates, and in Cantons Grisons and Ticino with their high presence of corporations and public institutions. The heterogeneity of the sample allows the consideration of differences such as traditional behaviors (e.g. herd management or cheese specialties), products' markets, and laborers' availability. Since the summer farms were randomly chosen, the sample included different farm types, altitudes, accessibilities, management systems and other characteristics. An overview is given in the following table.

*Table 1. Overview of the main characteristics of the summer farms included in the survey*

Region		Farm type	
Bern	12	Dairy-cows	23
Moesa	16	Livestock	14
Ticino	4	Goats	4
Lower Engadine	18	Mixed	9
Altitude class		Farm management	
< 1500	8	Single	9
1500-1800	15	Couple	11
1800-2100	19	Family	8
> 2100	8	Family with employee	7
		Group	15
Dairy production		Employees' origin	
None	17	Swiss	20
Milk	6	Foreign	22
Cheese	27	Mixed	8
Accessibility			
By foot	12		
By car	38		

The interviews covered a broad range of topics and an overview of the main domains addressed is here provided:

- Basic personal data (e.g. age, gender, origin, winter occupation)
- Main motivational values for the occupational choice
- Important characteristics of the workplace (e.g. infrastructure, social environment)
- Future desire for occupation in the alpine farming sector
- Problems experienced on the summer farm (e.g. social conflict)
- Infrastructure conditions (e. g. residential/production buildings, accessibility)
- Working conditions (e. g. wage, contract situation).

Data collected with the questions related to the «motivational values for the occupational choice» represent the central sub-group of questions for this study, since they provided information on the main reasons related to the occupational choice. Most of the collected variables are either binary (yes / no) or ordinal on a five-point Likert scale ranging from «does not apply at all» (value of 1) to «fully applies» (value of 5).

### **3.2 Data analysis**

Cluster analysis belongs to the multivariate techniques allowing exploratory data analysis, organizing the observed data into meaningful groups or clusters, maximizing the similarities of the observations within each cluster and maximizing the dissimilarities between the clusters. This is an approach commonly used in the rural socioeconomics and sociology research areas and especially in those focusing on different farming styles and consumers' behavior. The cluster technique here employed is based on the Euclidean square distance and on the Ward (or minimum distance) method as aggregation criterion. This method proceeds with the combination of the members into progressively larger clusters (aggregative) based on one or more independent variables considered relevant to establishing a specific typology. Since we opted for a no a-priori assumption about the influence of the independent variables, we decided to include all 19 motivation variables in our analysis (Table 3). Factor analysis was not considered a suited option for this data set since it provided no clear benefit reducing the variables and decreased the interpretability of the outcomes (Milligan and Hirtle 2003; Dolnicar and Grun 2008). The method here employed thus groups



with members only based on their main motivational values towards the occupational choice of alpine farming.

In order to provide a first assessment of the resulting categories, descriptive statistics were computed for each individuated cluster and for the whole sample. Such descriptive values are provided for both those variables used to individuate the clusters as well as for the other variables not directly involved in the computing procedure. These values allow the identification of differences and similarities between the groups, and reveal the level of cohesiveness within the clusters.

The validation of the data partition is an important issue, since virtually any clustering algorithm will produce partitions for any data set, even random noise data which contain no cluster structure. As suggested by Milligan and Hirtle (2003), in order to perform an inference process two types of criterion measures can be used to assess the significance of a data partition. The external criterion index is applied to those variables not directly involved in computing the clusters in order to evaluate the resulting data partition. For this type of variable it is consistent to use standard parametric procedures. Dealing with binary and categorical data we used the chi-squared test, while with continuous and ordinal data the nonparametric Kruskal-Wallis H test was applied (Table 2 and Table 3).

Internal validation measures (Table 3) reflect the goodness-of-fit between the data used for the clustering procedure and the categorization obtained. Such measures can be used on the variables directly involved in the clustering analysis. Since these values provide a relative estimation of goodness, they can be used to estimate the best number of clusters for the model. All p-values are two-sided. Analyses were carried out with R statistical software.

## 4 Results

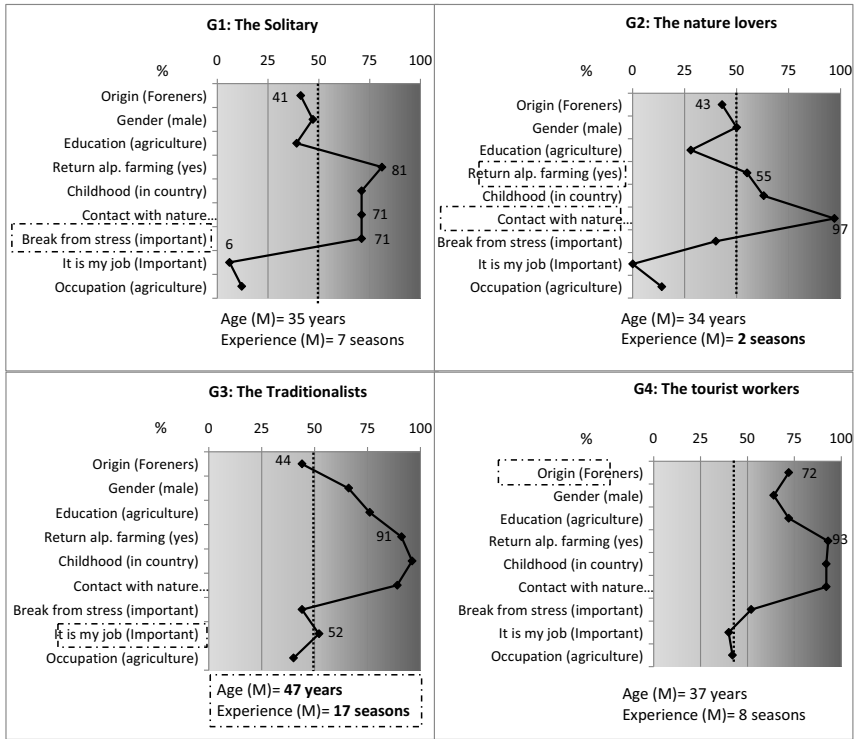
### 4.1 Descriptive analysis of the sample

Based on data collected with the survey, a hierarchical cluster analysis was carried out using only those variables accounting for the motivational values, revealing four major clusters. Figure 1 (and Table 4. in the appendix) shows the main characteristics defining each group. When investigating the scores obtained by means of cluster analysis classification remarkable differences between the groups could be observed and a distinctive «label» was assigned to each group expressing the main common characteristics of its members:

- Group 1 – «The Solitary»
- Group 2 – «The Nature lovers»
- Group 3 – «The Traditionalists»
- Group 4 – «The Tourists-workers»

Both genders were quite well represented in the sample with a slight prevalence of males. The mean age of the respondents was 39 years ( $SD = 13$ , range: 14 – 68 years) and the cluster that differed the most from the others regarding this variable was the one of the *Traditionalists* (G3), scoring an older age of 47 years. Looking at the country of origin of the respondents, the *Tourist-workers* (G4) showed a remarkable prevalence of foreign members. Observing the descriptive values obtained for each cluster, a first rough separation between the first two groups (*Solitary and Nature-lovers*) and the last two groups (*Traditionalist and Tourist-workers*) could be made. Indeed it seems that both the *Traditionalist* and the *Tourist-workers* (G3 and G4) have a stronger relationship with agriculture than the *Solitary and Nature-lovers* (G1 and G2). Following graph provides a visual representation of the main differences among the four groups.

Figure 1. Representation of the four clusters based on the socio-economic variables. Most characterizing aspects are highlighted.



People working as employees at alpine summer farms mostly grew up in the country-side. However, from this survey it can be observed that this is particularly true for the *Traditionalist* (G3) and the *Tourist-workers* (G4) (where more than 90% of those interviewed spent their childhood in the country-side), less evident for the *Solitary* (G1) and only slightly true for the *Nature-lovers* (G2). Education also meaningfully characterizes these clusters. Members of both the *Solitary* and the *Nature-lovers* had mostly an education in a non-agricultural area. Likewise, groups differed regarding their occupation during the rest of the year which for about 70% of the whole sample has no relation with agri-

culture. These last three categorical variables significantly distinguished the four clusters according to the chi-squared test. On average, respondents had spent 8 seasons on alpine pastures ( $SD = 8$ , range: 1 – 42). The number of seasons of alpine farming differed meaningfully especially for two groups: the *Traditionalists* (G3) which showed the highest average experience with 17 years and the *Nature-lovers* (G2) which scored less than 3. The overall participation at specializing courses on alpine farming techniques was slightly less than 50%, with the group of the *Solitary* (G1) showing a distinctive higher rate (i.e. 71%) and the other three groups scoring all around 44%. While both the *Solitary* (G1) and the *Nature-lovers* (G2), which mainly derived from a non-agricultural background, evaluated participation in these courses as «important», the *Traditionalists* (G3) and the *Tourist-workers* (G4), which had more experience in the agricultural field, considered the participation rather unnecessary. However, it is important to point out that on summer farms where milk is transformed into cheese it is mandatory for at least one member of the team to have taken part in these courses at least once.

The form of agreement between the employees and their employers was homogeneous among the groups, with individual written contracts being the most common working relationship form, followed by verbal agreements and, lastly, team contracts. Nevertheless, about one third of the sample declared that duties and working conditions should be clearly defined in writing, showing discomfort with their current agreement. On average employees worked about 12 hours/day ( $SD = 3$ , range: 6 – 20 hours). Both the *Solitary* (G1) and the *Nature-lovers* (G2) evaluated the workload as «heavy» while the *Traditionalists* (G3) and the *Tourist-workers* (G4) considered it rather «normal». No significant difference between the duties could be found among the clusters. The average wage was 2750 SFr. per month and showed no significant differences between the groups. However, only the members of the *Tourist-workers* (G4) considered the wage as almost sufficient while most of the employees were rather unsatisfied with their income.

As previously stated, groups were identified based on the 19 motivational variables collected with the survey. The scores obtained by asking during the interviews the main reasons for working in the alpine sector can be seen in Table 2. For all the groups the pleasure in working with animals, the contact with nature and the fascination of the mountains were always among the most important reasons. Also very well valued were relaxation from a stressful lifestyle and the opportunity of taking some time off from society.

Both the *Traditionalists* (G3) and the *Tourists-workers* (G4) considered alpine farming as their job and highly valued its related independence and freedom. However, only the *Tourists-workers* (G4) seemed to choose this occupation also because the pecuniary return was considered interesting while the *Traditionalists* (G3) valued the occupation because it formed part of their business. *Traditionalists* (G3) and *Tourists-workers* (G4) not only grew up in an agricultural sector but often stated that alpine farming was an activity where the whole family was involved and that the conservation of traditional behavior was one of the reasons for their occupational choice in the sector.

The following table shows the median values scored by each cluster regarding the motivation variables. Most of the variables showed a significant influence in identifying the clusters according to the Kruskal Wallis chi-squared test.

Table 2. Descriptive statistics of mean scores of the motivation variables by clusters

"Why are you working at a summer farm?"	Cluster				Total
	Solitary	Nature lovers	Traditionalists	Tourists Workers	
Job related					
It is my job	1	1	4	3	2
Independency feeling	3	1	4	4	3
Seasonal occupation	3	1	4	4	3
Earning possibility	2	1	3	4	2
Is a different occupation from the winter	3	2	2	1	2
The production process	4	4	2	2	3
Is hard work	1	3	3	1	2
Nature related					
Contact with nature	4	5	5	5	5
Work with animals	3	5	5	5	5
Fascination of the mountains	5	5	5	5	5
Research for peace					
A few months break from society	5	4	4	4	4
Relax from a stressful lifestyle	5	3	3	4	3
I enjoy solitude	3	1	3	1	1
Simple life-style	4	3	3	4	4
Family and tradition					
Support my family handling the workload	1	1	3	1	1
My family always went alpine farming	1	1	3	4	1
The conservation of tradition	1	3	4	3	3
Became a habit	1	1	3	1	2
No one else goes	1	1	3	1	1

Rating scale: 5=fully applies, 4=largely applies, 3=partially applies, 2=does rather not apply, 1=does not  
Highest values above the mean are highlighted

#### Internal Validation Measures

Connectivity (degree of connectedness of the clusters, ranges from 0 to  $\infty$ , to be min.)

Dunn Index (separation and compactness, of the clusters, ranges from 0 to  $\infty$ , to be max.)

Silhouette Width (separation and compactness, ranges from -1 to 1, to be max.)

Analyzing the answers to the question «How many more seasons will you be spending working on a summer farm?», the future intention towards an occupational choice in this sector was addressed.

While about 80% of the respondents intended to keep working in the alpine farming sector in future, almost half (i.e. 45%) of the *Nature-lovers* (G2) stated that 2011 was going to be their last season. The interpretation of this result becomes more understandable after observing that 73% of the members of

this group declared that troubles occurred during the current working season on the summer farm.

Among all respondents the most frequent issue reported was the shortage of labor force for the workload on the summer farm, followed by problems deriving from different farm management opinions. An overview of the main problems addressed by the employees is reported in the following table. The most important issue threatening long-term engagement in this occupation seems to be the scarcity of complementary jobs during the winter. Moreover, employees considered the facilities' conditions to be very important as well as the trust of the employer in the quality of their work.

*Table 3. Overview of problems and issues for the Alpine farming sector*

Questions regarding issues at the summer farm	Unit	Clusters				Total
		Solitary	Nature lovers	Traditionalists	Tourists Workers	
<b>Which is the main issue to continue alpine farming?</b>						
Complementary winter occupation	Median	4	5	1	4	4
Excessive workload	Median	3	2	3	3	3
If I had no good disposition in the team	Median	3.5	4	3	4	3
Conflicts with the employer	Median	3	3	3	3	3
Incorrect ecological management	Median	3	3	3	3	3
Children's school	Median	1	1	3	1	1
Are any of previous issues already a problem?	% of N	3	10	8	9	30
Did you experience problems this year? (Yes)	% of N	9	22	12	11	54
<b>If yes, problems derived from...</b>						
...excessive workload	% of N	6	14	4	8	32
...different management opinions	% of N	5	8	8	7	28
...lack of support by the employer	% of N	5	5	7	7	24
...lack of communication in the team	% of N	4	9	4	6	23
...bad infrastructure or working material	% of N	4	6	2	7	19
...language difficulties or cultural differences	% of N	1	2	1	4	8
<b>How important are following aspects for you?</b>						
Residential building in good condition	Median	4	4	4	3	4
Production building in good condition	Median	3	3	4	1.5	3
Good accessibility by road	Median	3	3	3	3	3
Trust of the employer in my working quality	Median	2	4	4	4	4
The possibility to take some days off	Median	1	2	1.5	1	1
My opinion about the management is listened	Median	3	3	4.5	3	3
Clear organization and division of the work	Median	4	4	3	3	3
Possibly few tourist passing by	Median	4	3.5	3	2	3
The possibility to bring my family with	Median	1	1	5	1	1

## 4.2 Typology of the respondents according to their motivation values

### Cluster 1 – «The Solitary»

The first group mostly comprises foreign females deriving from a non-agricultural sector and occupation. Their members are mainly looking for a few months off society and relaxation from a stressful lifestyle. Another criterion for the occupational choice is the simpler living for a period of time. Peace and solitude play an even more important role than contact with nature and work with animals. Their long-term engagement and interest in the production of dairy specialties is disclosed by their higher participation rate in specializing courses. Moreover, members of this group are searching for a seasonal occupation different from the one they carry out during the winter. Good organization of the work and fitting well into the team are essential components of life on the alpine pastures and their absence could be a reason for future non-returns. Members of this group often declared that their life choices were almost completely driven by the ability to work on the alpine pastures during the summer. Nevertheless, the scarcity of a complementary job supply during the winter represents a limiting factor.

### Cluster 2 – «The Nature-lovers»

This cluster consists for the most part of Swiss employees with a non-agricultural education and less experience alpine farming. Members of this group are looking for nature and work with animals. The conservation of traditional behavior and techniques also play an important role for its members. Good accessibility by road and a residential building in good condition are usually considered very important. Most of the members of this group are not employed in the agricultural sector during the winter. For this group, the working experience in the alpine farming sector remains rather limited to one or very few seasons. Although it is important to point out that members of this group are also unwilling to return because they are often looking for a onetime life experience, this group also reported experiencing several problematic situations, mostly related to an unsustainable workload and scarce communication in the team. The inexperience and the dependency of this category often create contrasts with other members of the team and with the employers.



### **Cluster 3 – «The Traditionalists»**

Mainly Swiss, males and, on average, older. Alpine farming is part of their business; most of the members have a background in agriculture, many seasons of experience and also a high expectation of continuing alpine farming in the future. They consider taking specific courses unnecessary because of their long experience in the agricultural sector. Members of this group desire functional residential and production buildings. Their members are mainly looking for freedom and independence and believe in the conservation of tradition. Trust in their work is important as well as the consideration of their opinion about the management of the summer farm. The winter occupation does not represent an issue since they are usually employed or managing an agricultural farm in the lowlands, while conflicts with the employer represent the most frequent and important problem. Often managing the summer farm together with their family, it is clear that respondents of this group are those with the greatest conservative behavior among the groups identified. Members of this cluster often declared that it is rather difficult to combine the scholarly duties of their children with the alpine farming tasks at the beginning and towards the end of the summer season.

### **Cluster 4 – «Tourists-workers»**

Mainly foreign males, who grew up in the countryside and have a solid background in agriculture. Although on average they do not have many seasons of experience, they do have high expectation of continuing farming in the alpine region in the future. Usually also employed in the agricultural sector during the winter, most of the respondents belonging to this group did not take specific courses in the alpine farming sector because of a lack of offer in their place of origin. Members of this group are looking for a seasonal occupation and are the only category to consider the salary worth the work. Nevertheless most commonly, the remuneration was judged insufficient or low and certainly not among the reasons for the occupational choice.

Simple buildings are fine but accessibility by road is considered quite important. Fitting well into the team as well as the trust of the employer are a must. The proper ecological management of the alpine pastures as well as the independence of their work are both very important aspects for the members of this group. Respondents often stated that going alpine farming during their child-

hood and together with their family represented a determining factor for their return as adults. It was the only group that actually positively valued the contact with tourists.

## 5 Discussion and conclusions

This study investigated whether there are significant differences among farmers' occupational choice processes in relation to the alpine farming sector. Groups of farmers were identified employing cluster analysis on empirical data obtained with 120 face-to-face interviews on the hypothesis that different socio-economical backgrounds may underline different occupational choice motivational patterns. A theoretical analysis leads to the presumption that the occupational profile of alpine workers should be more diverse than that of farmers and that at least two distinctly different groups should emerge.

However, results demonstrate the existence of four clusters, two of which are strongly related to agriculture («*The Traditionalists*» and «*the Tourists-workers*») and two others («*The Solitary*» and the «*Nature-lovers*») where the occupational choice is almost completely driven by the search for other benefits such as a break from civilization and contact with nature. A positive outcome was that three groups showed great engagement with alpine farming while only one group («*the Nature lovers*») was more likely to be looking for a onetime life experience.

Results showed that the socio-economic background and the motivational patterns of workers engaging an occupation in the alpine farming sector are very heterogeneous and that this diversity highly reflects in the expectations, problems and needs of these laborers.

While it is truth that some laborers consider alpine farming as their job and others search for different benefits, our initial distinction in these two groups was only partially correct. Obviously, in this sector employers commonly prefer employees with experience in the agricultural field. However, an unexpected finding of this study was that this labor supply is also characterized by members deriving from a non agricultural background but still highly engaged with alpine farming and in learning its techniques (*the Solitary*). On the other hand,

in our sample, inexperienced and young laborers (*the Nature lovers*) represented the bigger group and were usually quite appreciated at those summer farms where the employer was always present and they could be compensated with a lower wage, i.e. as trainees. The high percentage of women and foreign laborers was also a surprising outcome. In the alpine farming sector, the wage is expected to be lower than in other occupations even in the agricultural sector itself. Our initial hypothesis was that at least those employees choosing alpine farming as their life-occupation should be satisfied with their income. Results show that this was not the case and that the only group considering the wage almost sufficient was the group composed by foreign employees (*Tourist workers*) coming from countries where the same job is less remunerated than in Switzerland.

While employers often search for someone simply to perform the work, most of the employees declared that trust in their capabilities and freedom to decide about the management of the summer farm were indefeasible aspects of a long-term working relationship. This problem was clearly exacerbated at those summer farms where the employer had no direct experience of Alpine farming or where the employee had to answer to several landowners. Employers should thus become more aware of the importance for the employees to take active part to the management of the summer farm.

The conservation of traditional behavior represents a decisive factor for occupational choice in this sector and many respondents stated that the conservation of traditional methods and tools were determinant aspects of work in the alpine region and were rather against any modernization. However, since the heavy workload represents one of the main problems, a balance between the conservation of traditional techniques and the introduction of recent innovations should be endorsed. In those regions where the alpine cheese has an interesting market, employers had less difficulties in finding qualified labor force and employees were fairly paid. This implies that the recognition of the regional added value of such products with an improvement of the distribution channels could have important impact on the labor market as well. The main factor constraining employment on the summer farms to a onetime life experience is the complicated combination of this seasonal occupation with a second job during the rest of the year. Regions where the cantonal administration played a role by employing the farmers, consciously avoided this problem. However,

both previous conditions imply a local social and political interest in ensuring those farmers taking care of the pastures during the summer a full year occupation.

Literature and data on this labor supply are very limited. In Switzerland, Rudmann (2004) performed a survey regarding the alpine labor market finding out the importance of the infrastructure and of the attention of the employer to the needs of the laborers. Both these results were confirmed also with this survey. Limitations of this study arise from the sample size, which was affected by the high transaction costs of face-to-face interviewing. Although this method is more costly and time-consuming than the postal service the presence of the interviewer allowed the perception of the living environment (i.e. infrastructure conditions, accessibility options, personal and group attitudes), increasing the quality of the data. Moreover, the information collected with the extensive conversations which went well beyond the fulfillment of the questionnaire itself, allowed a solid understanding of the answers of the respondents and supported statements and conclusions of this study. Even though the respondents were willing to participate, showed interest and openness to the survey, the investigation of sensible topics such as issues within the team or with the employer were sometimes limited by the time available and the difficulty to discuss such type of aspects with a stranger.

The remoteness of the location and the traditional behavior certainly are important reasons why this labor market failed to adapt to modern conditions and why the labor supply is in decline. This study contributes to the knowledge available on the labor supply in the Swiss alpine farming sector discerning among different values and expectations of employed laborers. Future studies should focus on long term occupational choice in this labor segment and on possible political measures to improve the future labor supply.

## **Acknowledgements**

We gratefully acknowledge the support of the Swiss Foundation for Alpine Research which provided the financial contribution. Moreover we thank the AlpFUTUR Research Coordination Committee for their considerable knowledge

throughout the course of this project and Dr. Stefan Lauber and Barbara Sulzer for their help in drawing the questionnaires.

## References

- Ashby, A. W. (1926). «Human motives in farming.» *Welsh Journal of Agriculture* 2: 5–12.
- Austin, E. J., Willock, J., Deary, I. J., Gibson, G. J., Dent, J. B., Edwards-Jones, G., Morgan, O., Grieve, R. and Sutherland, A. (1998). «Empirical models of farmer behaviour using psychological, social and economic variables. Part I: Linear modelling.» *Agricultural Systems* 58(2): 203–224.
- Baur, P. (2006). «Die Rückkehr des Waldes im südlichen Alpenraum der Schweiz: Hintergründe eines Landschaftswandels.» *Agrarwirtschaft und Agrarsoziologie* 2.
- Beedell, J. D. C. and Rehman, T. (1999). «Explaining farmers' conservation behaviour: Why do farmers behave the way they do?» *Journal of Environmental Management* 57(3): 165–176.
- Berkhout, E. D., Schipper, R. A., Kuyvenhoven, A. and Coulibaly, O. (2010). «Does heterogeneity in goals and preferences affect efficiency? A case study of farm households in northern Nigeria.» *Agricultural Economics* 41(3–4): 265–273.
- Blau, P. M., Gustad, J. W., Jessor, R., Parnes, H. S. and Wilcock, R. C. (1956). «Occupational choice – a conceptual framework.» *Industrial & Labor Relations Review* 9(4): 531–543.
- Blustein, D. L., Devenis, L. E. and Kidney, B. A. (1989). «Relationship between the identity formation process and career development.» *Journal of Counseling Psychology* 36(2): 196–202.
- Bundesamt für Landwirtschaft (2009). *Agrarbericht 2009*. Bern: BLW.
- Christiansen, C. H. (1999). «Defining lives: Occupation as identity: An essay on competence, coherence, and the creation of meaning – The 1999 Eleanor Clarke Slagle lecture.» *American Journal of Occupational Therapy* 53(6): 547–558.
- Coughenour, C. M. and Swanson, L. E. (1988). «Rewards, values, and satisfaction with farm work.» *Rural sociology* 53(4): 442–459.
- Dolnicar, S. and Grun, B. (2008). «Challenging ,Factor Cluster Segmentation.» *Journal of Travel Research*, 47(1): 63–71.
- Fairweather, J. R. and Keating, N. C. (1994). «Goals and management styles of New Zealand farmers.» *Agricultural Systems* 44: 181–200.
- Flury, C., Gotsch, N. and Rieder, P. (2004). «Zukunft im Wandel: Erwartete Entwicklung der Landwirtschaft im Alpenraum.» *Agrarwirtschaft und Agrarsoziologie* 01/04.
- Gasson, R. (1973). «Goals and values of farmers.» *Journal of Agricultural Economics* 24(3): 521–542.
- Gellrich, M., Baur, P., Robinson, B. H. and Bebi, P. (2008). «Combining classification tree analyses with interviews to study why sub-alpine grasslands sometimes revert to forest: A case study from the Swiss Alps.» *Agricultural Systems* 96(1–3): 124–138.
- Gillespie, J. and Mishra, A. (2011). «Off-farm employment and reasons for entering farming as determinants of production enterprise selection in US agriculture.» *Australian Journal of Agricultural and Resource Economics* 55(3): 411–428.

- Gillmor, D. A. (1986). «Behavioural Studies in Agriculture: Goals, Values and Enterprise Choice.» *Irish Journal of Agricultural Economics and Rural Sociology* 11: 19–33.
- Harper, W. M. and Eastman, C. (1980). «An evaluation of goal hierarchies for small farm operators.» *American Journal of Agricultural Economics* 62: 66–74.
- Holland, J. L. (1985). *Making vocational choices: A theory of vocational personalities and work environments*. Englewood Cliffs, NJ: Prentice Hall.
- Kerridge, K. W. (1978). «Value orientations and farmer behavior: An exploratory study.» *Quarterly Review of Agricultural Economics* 31: 61–72.
- Kielhofner, G. (2007). «Model of human occupation: theory and application.» Lippincott Williams & Wilkins: 565.
- Lauber, S., Seidl, I., Böni, R. and Herzog, F. (2008). «Sömmerungsgebiet vor vielfältigen Herausforderungen.» *Agrarforschung* 15(11–12): 548–553.
- Lehmann, B., Steiger, U. and Weber, M. (2007). «Landschaften und Lebensräume der Alpen Zwischen Wertschöpfung und Wertschätzung.» *Leitungsgruppe des NFP* 48.
- Maybery, D., Crase, L. and Gullifer, C. (2005). «Categorising farming values as economic, conservation and lifestyle.» *Journal of Economic Psychology* 26(1): 59–72.
- Meijers, F. (1998). «The development of a career identity.» *International Journal for the Advancement of Counselling* 20: 191–207.
- Milligan, G. W. and Hirtle, S. C. (2003). «Clustering and Classification Methods.» *Handbook of Psychology* 165–186.
- Nauta, M. M. and Kahn, J. H. (2007). «Identity status, consistency and differentiation of interests, and career decision self-efficacy.» *Journal of Career Assessment* 15(1): 55–65.
- Perkin, P. and Rehman, T. (1994). *Farmers' Objectives and their Interaction with Business and Life Styles: Evidence from Berkshire, England*. Wallingford: CAB International.
- R Development Core Team (2010) *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.R-project.org>
- Raskin, P. M. (1985). «Identity and vocational development.» *New Directions for Child Development* 3025–42.
- Rudmann, C. (2004). *Langfristige Sicherung der Funktionen der schweizerischen Alpbetriebe*. Zürich.
- Savickas, M. L. (1985). «Identity in vocational development.» *Journal of Vocational Behavior* 27(3): 329–337.
- Skorikov, V. and Vondracek, F. W. (1998). «Vocational identity development: Its relationship to other identity domains and to overall identity development.» *Journal of Career Assessment* 6(1): 13–35.
- Solberg, V. S., Close, W. and Metz, A. J. (2002). *Promoting success pathways for middle and high school students: Introducing the adaptive success identity plan for school counselors*. Thousand Oaks, CA: Sage.
- Werthemann, A. and Imboden, A. (1982). *Die Alp- und Weidewirtschaft in der Schweiz. Zusammenfassung der Alpkatastererhebungen*. Bern: Bundesamt für Landwirtschaft.

Willock, J., Deary, I. J., Edwards-Jones, G., Gibson, G. J., McGregor, M. J., Sutherland, A., Dent, J. B., Morgan, O. and Grieve, R. (1999). «The role of attitudes and objectives in farmer decision making: Business and environmentally-oriented behaviour in Scotland.» *Journal of Agricultural Economics* 50(2): 286–303.

## Appendix

Table 4. Descriptive statistical values and test of the sample and for each cluster

Cluster	Sample N	Interview location N				Gender %	Age Mean (SD)	Origin %
		Bern	Moesa	Ticino	Unter-Engadin			
1	17	2	5	4	6	47	35 (13)	58
2	30	9	7	4	10	50	34 (12)	44
3	27	8	8	0	11	66	47 (11)	47
4	25	1	6	6	12	64	37 (13)	72
Total	99	20	26	14	39	58	39 (13)	54
Test,								
p-value		$\chi^2= 13.68, 0.03^*$		$\chi^2= 2.81, 0.42$		$\chi^2= 15.11, 0.00^{***}$		$\chi^2= 5.76, 0.12$

Cluster	Childhood residence %	Education %	Winter occupation %	No. of summer Mean (SD)	Future farming %
	Country side	In agriculture	In agriculture		Not continue
1	71	39	12	7 (10)	19
2	63	28	14	3 (2)	45
3	96	76	40	17 (9)	9
4	92	72	42	7 (6)	7
Total	82	56	29	8 (9)	21
Test,					
p-value		$\chi^2= 16.07, 0.00^{***}$	$\chi^2= 17.74, 0.00^{***}$	$\chi^2= 9.14, 0.02^*$	$\chi^2= 49.3, 0.00^{***}$
		$\chi^2= 14.53, 0.10$			

Cluster	Working conditions %	Workload Mean	Wage evaluation Mean	Wage Mean
	Unclear, should be written	1=very low... 5=very heavy	1=insufficient... 5=very good	CHF / 4 months
1	41	4	2.6	12833
2	34	4.1	2.2	11817
3	33	3.6	2.5	12025
4	29	3.8	2.8	11383
Total	31	3.8	2.5	11945
Test				
p-value		$\chi^2= 3.9, 0.68$	$\chi^2= 10.58, 0.30$	$\chi^2= 21.37, 0.12$
		$\chi^2= 2.03, 0.52$		

SD : standard deviation

p-values to reject  $H_0$

Test significance: (\*) significant at the 0.05 level, (\*\*) significant at the 0.01 level and (\*\*\*) significant at the 0.001 level.

$\chi^2$ : chi-squared test;  $\chi^2$ : Kruskal -Wallis test;

**Chiara Calabrese**

*Agroscope Reckenholz-Tänikon ART*

*Tänikon*

*CH-8356 Ettenhausen*

*E-Mail: chiara.calabrese@art.admin.ch*