



# Factors affecting farm growth intentions of family farms in mountain regions: Empirical evidence for Central Switzerland



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## ABSTRACT

Family farms in mountain regions are undergoing a progressive structural change and an ongoing shift in the allocation of production factors land, capital and labor. In Switzerland, various policy measures influence the re-allocation of these production factors. To understand the effectiveness of these schemes and to assess future farm structural change, it is useful to analyze the underlying drivers which support and hinder the emergence of individual farm growth strategies. We study the family farms' growth intentions using a logistic regression model based on a combination of census and survey data on family characteristics from two mountain case study regions in Central Switzerland. Factors supporting farm growth intentions are the relative change in farm size in recent years, farm related sunk costs, farm diversification and farm size. We found no support for the hypothesis that farm growth intention is also influenced by the perceived personal situation represented by indicators for the perceived workload, psychological stress and financial problems. In addition, off-farm labor did not prevent farmers from stating growth intentions. Our empirical findings suggest that (i) the most important factors which support farm growth intentions correspond with factors driving observed patterns of structural change; (ii) limited availability of family labor may result in a new critical threshold for farm growth strategies; (iii) aims and non-pecuniary preferences of farmers will impede a rapid structural change in the near future.

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## Introduction

Farm structural change influences the productivity and efficiency of farming, income distribution within agriculture, demand for government services and infrastructure, and the well-being of local communities (Weiss, 1999). In most European regions, agriculture is undergoing a progressive structural change with a decline in the number of farms. These changes are particularly marked in mountain regions (Pinter and Kirner, 2014; Streifeneder et al., 2007) where small family farms are unable to withstand the pressure of competition from more favorable locations (Flury et al., 2013) and the provision of important ecosystem goods and services from agriculture is endangered (Huber et al., 2013). As a consequence, governments provide different forms of policy support to maintain a multifunctional agricultural sector in mountain areas.

The importance of these policies is reflected by the goals of the latest policy reforms in the EU and Switzerland, in which more equitable and greener policy mechanisms designed to strengthen rural development and the provision of public goods (Mann and Lanz, 2013; Renwick et al., 2013).

In addition to empirical assessments of farm structural change (see e.g. Zimmermann et al., 2009 for a review), a series of recent studies explored the future intentions of farm households in reaction to policy reforms. Stated intentions are used to further the understanding of the impacts of policy on structural change by identifying determinants of farm structural changes as well as likely future changes (Barnes et al., 2014; Bartolini et al., 2012; Bartolini and Viaggi, 2013; Bougherara and Latruffe, 2010; Breen et al., 2005; Gorton et al., 2008; Latruffe et al., 2013; Lobley and Butler, 2010; Maye et al., 2009; O'Donnell et al., 2011; Raggi et al., 2013; Tranter et al., 2007). The use of survey data to enrich census data in the analysis of future structural change and its mechanisms has two important advantages. Firstly, stated intentions regarding future behavior complement model based assessments of future structural change with household characteristics and thus provide

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important information on the planning and allocation of budget resources (Breen et al., 2005; Latruffe et al., 2013; Pinter and Kirner, 2014). Secondly, farm household level surveys also permit the consideration of additional quantitative explanatory factors as well as qualitative issues thus enhancing our understanding of the mechanisms of reaction to policy. The understanding of the role of household characteristics provides insights into the functionality of the policy as well as a basis for the evaluation of its effectiveness (Bartolini and Viaggi, 2013; Breen et al., 2005; Viaggi et al., 2011). In addition, recent studies provide some evidence that despite the hypothetical nature of stated intentions, the emerging patterns can be, to some extent, aligned to ex-post behavior (Barnes et al., 2014; Gorton et al., 2008; Viira et al., 2014).

However, existing literature has not exploited the full potential of the combination of survey and census data sources, particularly with respect to two directions. Firstly, social factors affecting farm households' decisions with respect to farm growth have not been widely considered even though different authors claim that these factors are known to be decisive for farm-level decision-making (Bartoli and De Rosa, 2013; Celio et al., 2014; Darnhofer, 2015; Lobley and Butler, 2010; Weller et al., 2013). Secondly, links of survey and census data have focused on cross-sectional information. Thus, developments of the farms in the past have not been explicitly captured with census data. However, past developments are assumed to be relevant for current and future farm growth decisions, e.g. by indicating a development within the farm's life cycle (Calus et al., 2008; Latruffe et al., 2013; Weiss, 1999).

In this study, we aim to fill this gap by combining census data from different periods with surveys that also account for social factors influencing farm households. Our empirical analysis focuses on family farms in the Swiss Alps. In particular, we focus on farms in two cantons (Nidwalden, Uri) in the Central Swiss mountain region. We aim to improve the understanding of future farm structural change and the effect of policy measures supporting farm growth by presenting and discussing both economic and social factors that encourage or hinder intended farm growth in Swiss mountain regions. Thus, we investigate how, in addition to economic and structural factors, social factors such as perceived workload, psychological and financial stress constrain or support farmers' development strategies. In order to assess drivers of farm growth strategies, we address not only farm characteristics and economic and social resources, but also attitudes toward farm structural change and preferences for the development of these family farms in the near future. Furthermore, we explicitly include the observed changes in farm size as an explanatory variable in our analysis. The consideration of a wide set of factors determining farm growth intentions is essential for the development of effective policies designed to stimulate structural change.

Our focus on mountain agriculture in Switzerland is particularly relevant, due to the following two factors. Firstly, farm structural change is accentuated in mountain regions as many farms are very small and lack competitiveness (Flury et al., 2013). Thus, family farms often have significant income sources off the farm and limited labor availability which makes them vulnerable to policy changes. Secondly, mountain regions have a great potential to provide ecosystem goods and services of high societal and political relevance (Grêt-Regamey et al., 2012). Mountain agriculture provides, jointly with the production of food, a set of important goods and services such as landscape maintenance, biodiversity preservation and contributes to rural viability. Therefore, Swiss agricultural and regional policy explicitly focuses on both maintaining agricultural production in the mountain regions by promoting more competitive structures and the support of mountain ecosystem goods and services (Lanz, 2012).

The remainder of this paper is structured as follows. In the next section, we introduce the policy background of structural change in Swiss mountain agriculture and also present an overview of factors determining farm growth strategies identified in the literature. Then we describe the case study regions, the data collection and the empirical analyses conducted. After presenting the results, the final section proposes a discussion and conclusions.

## Background

### Policy context

Agricultural production in Swiss mountain regions is facing four particular economic and political boundary conditions that influence farm structural change. Firstly, farms in Switzerland benefit from one of the highest levels of government support worldwide (OECD, 2014). More specifically, over half their income is generated by government support schemes, i.e., either border protection or direct payments (Huber and Lehmann, 2010). In addition, Switzerland's subsidy system is based on decoupled payments which in general lowers the probability of farm disinvestment (Kazukauskas et al., 2013) and encourages small farms to intensify their production rather than to exit the sector (Mann, 2005). Secondly, compared to other mountain regions with increasing depopulation, off-farm employment is accessible thanks to the good performance of the overall economy in Switzerland (Baltensweiler and Erdin, 2005). Thus, farms are confronted with high opportunity costs, i.e., the measure of benefits forgone due to alternative uses of labor. This is particularly true in Central Switzerland where mountain regions and urban centers lie close together (Matti and Stotten, 2011) and off-farm opportunities in tourism exist. Thirdly, rural identity i.e., the values that farmers associate with the agricultural landscape and their work, still forms a strong background for the survival of farms, especially in mountain regions (Lauber, 2006). Farmers state that they have a strong bond with their work and their environment (FOAG, 2013) and the prospect of part-time farming does not deter young farmers from entering the sector (Mann, 2007; Rossier and Wyss, 2007). Fourthly, investment capital is abundant in Switzerland. Due to high off-farm wages, low interest rates and government support, farms can reinvest in new technologies and farm buildings resulting in a capital intensive agriculture (Baur, 1999).

Due to these factors, farm structural change in Swiss mountain regions is so far characterized by a relatively slow decline in the number of farms and the area of land cultivated has not declined as fast as in other European mountain regions in recent years (Flury et al., 2013; Streifeneder et al., 2007). The first development is contrary to the goals of Swiss agricultural policy, which aims to increase the competitiveness of Swiss family farms by means of various measures supporting farm growth in the farm succession phase (FOAG, 2009; Huber et al., 2014). This policy goal seeks to intensify structural change e.g. by increasing the number of small farm exits when the owner of the farm retires. It aims to increase the availability of land for larger and specialized farms with plans to grow and exploit economies of scale. The underlying policy mechanism is to restrict certain support measures to farms of a given size. In these policy measures, the assessment of farm size is based on standard labor units (SLU)<sup>1</sup>. This measure is applied in three major policy schemes supporting farm growth in the context of family farm succession (Hofer, 2008). Firstly, farms with more than one SLU can benefit from a low farm acquisition price if a successor is taking over the family business (family succession). This lowers

<sup>1</sup> SLU is defined as a unit to measure the overall working time requirement of a farm using standardized factors (LBV, Art.3 Abs. 1).

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