

Approaching agro-structural change in the Alps

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Abstract - Agro-structural changes are evident in the European Union (EU). As there are differences in the characteristics among the primary sector, this paper investigates driving forces for regional disparities across the Alps and discusses implications for the Common Agricultural Policy (CAP) based on a monitoring system. Analyses rest on a comprehensive set of statistical data at municipal (LAU2) level which enables the aggregation of general trends concerning the agro-structural change to a higher geographic scale. Results suggest that for intervening in the development of the primary sector, the application of locally adapted policy instruments by considering socio-economic framing conditions might be reasonable.

INTRODUCTION

Agro-structural changes are evident across the EU with an overwhelming trend towards rising farm size, decreasing farm numbers, and lower employment in the primary sector (EC, 2006). Despite this quite generalizing picture, there are significant differences between the status quo of the agricultural sector among member states (MS) and their regions. Initial points for this paper are significant geographical patterns in trends of agro-structural changes in the Alps. Then, considering: 1) the effects of interventions on the performance of the agricultural sector (EC, 2011; Eurostat, 2013); 2) the ongoing discussion on the design of the CAP; 3) the claim of the European Court of Auditors (ECA) for the effectiveness of rural development funding (ECA, 2013); and 4) increasing scientific and political interest in monitoring territorial developments at smaller geographical units, e.g. reflected in the ambition to collect EU-wide data at municipal level (ESPON, 2013). With this in mind, the question has to be raised, if more regionally specific approaches are more appropriate to steer agro-structural change than interventions following the watering-can principle. With the introduction of the funds-overarching Community Led Local Development (CLLD) (EU/1303/2013), locally based interventional approaches gain importance within EU policies; and apart from the trend away from production-dependent to agro-structural interventions (EC, 2006), recent locally based approaches have also become an inherent part of the CAP in the funding period 2007-2013. Within CLLD, an integrated territorial approach is followed, viewing the primary sector as one among others that encompass economical, social and environmental concerns. Yet,

considering the budgetary allocation of CAP funds (DG Agri, 2014; EC, 2011), it can be assumed that such approaches to rural development are seen as having a comparatively low impact on agricultural sector development and are deemed as rather soft instruments. Besides, the ECA (2013) has its doubts that the Commission and MSs can provide evidence that rural development funds are well spent. Against this background, the paper examines the extent to which socio-economic conditions influence the development of the agricultural sector and whether locally-based integrated approaches appear to be suitable instrument to influence agro-structural change - independent from political objectives.

DATA AND METHOD

The analysis of agro-structural change from 2000 to 2010 was based on harmonized data at regional (NUTS3 level) and municipal level (LAU2 level) covering the Alpine Convention (AC) area. Data were taken from national statistical institutes, the 4th Report of the Status of the Alps (AC, 2013), the Diamont Database (2014) or from Eurostat (2013). The descriptive part assessed disparities of development trends, whereas relations of agro-structural changes and socio-economic issues were evaluated with correlation and regression analyses in SPSS.

Hence, three research questions were considered:

- 1) Can geographical patterns with different agro-structural development trends be observed?
- 2) Are there any relations between socio-economic framing conditions and agro-structural changes?
- 3) Can benefits be expected from monitoring agricultural changes at municipal level and from locally tailored interventions addressing agriculture?

RESULTS

According to the latest agricultural census 2010, the AC area holds 259,516 farms. Most farms were reported in Italy (37%) followed by Austria (32%). During 2000 and 2010, 24% of farms were vacated. Thus trends observed in former agricultural censuses from 1980 to 2000 continued (Streifeneder, 2010).

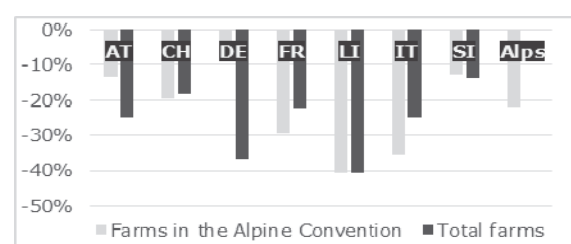


Figure 1. Country-wide development rates of Alpine farms to total farms between 2000 and 2010 in %.

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Comparing farm abandonment in the Alps with those of all farms, mountain farming is more stable in Germany, Austria and Slovenia. In contrast farms in Italy and France are more likely endangered to be deserted (Fig. 1) with abandonment rates clearly varying at regional level. In fact, Italy, besides having the highest decreasing rates at NUTS3, also contains regions with very small changes.

The heterogeneity in farm development becomes even more obvious when comparing the variances among regions and municipalities (NUTS3 and LAU2 level). Alpine wide, its standard deviation at LAU2 exceeds four times the one at NUTS3 level.

Table 1. Correlation analysis between agricultural and socio-economic variables at NUTS3 and LAU2 level.

	Δ Fa	Δ % Pf_Fa	Δ % Fa_5ha	Δ GR	Δ Uaa
Δ Fa		xx	xx	xx	x/xx
Δ % Pf_Fa	xx		x/xx	-/xx	-/x
Δ % Fa < 5ha	xx	x/xx		--	⁽⁻⁾ /-
Δ % Fa > 20ha	xx ⁽⁻⁾ /-	-	xx ⁽⁻⁾	- ⁽⁻⁾ /xx	- ⁽⁻⁾ /xx ⁽⁻⁾
Δ Gr	xx	-/xx	-		xx
Δ Uaa	x/xx	-/x	-	xx	
Δ Lsd	- ⁽⁻⁾ /-	- ⁽⁻⁾ /xx	-	xx ⁽⁻⁾ /-	xx ⁽⁻⁾ /-
Tour_beds_00	-	- ⁽⁻⁾ /x	-	-	xx ⁽⁻⁾ /-
Δ empl_rate	-	-	xx	-	x ⁽⁻⁾
Δ pop_den	-/ ⁽⁻⁾	-/xx ⁽⁻⁾	- ⁽⁻⁾ /xx ⁽⁻⁾	x/-	xx/-

-/ correlation changes between NUTS3 & LAU2-level
xx/x 2-tailed significance at 0.01 (xx) and at 0.05 (x) level;
- No significance; ⁽⁻⁾ negative correlation.

Apart from farm development, remarkable variations are also determined within agricultural factors as well as for socio-economic ones. Likewise, the correlations at NUTS3 and LAU2 levels are varying (Table 1) remarkably. Thus, it appears reasonable to analyse regional disparities concerning the agro-structural change in the Alps at LAU2 level.

Table 2. Regression analyses determining the impact of driving forces on agro-structural change at NUTS3 level.

Dependent	Independent Variable					
Δ Fa	Δ % Pf_Fa	Δ % Fa > 20ha	%Fa_10-20ha00	%Fa_5-10ha00	%Pf_Fa_00	%Fa < 5ha00
R²	0,616	0,800	0,866	0,877	0,885	0,893
Δ % Fa < 5ha	Δ empl_rate	Δ % Pf_Fa	%Fa 20ha00	Uaa/Fa_00	Tour_bed00	%Fa_5-10ha00
R²	0,549	0,611	0,653	0,715	0,756	0,778
Δ % Pf_Fa	%Empl_2S_00	Δ Uaa/Fa	Δ UAA	%Fa < 5ha00		
R²	0,449	0,607	0,664	0,693		
Δ Gr	Δ Lsd	%Fa_10-20ha00	Δ %Fa_5-10ha	%Pf_Fa_00		
R²	0,795	0,833	0,858	0,870		
Δ Uaa	Δ Lsd	%Fa_10-20ha_00	%Empl_3S_00			
R²	0,851	0,868	0,891			

Abbreviations: Δ - Change (2000 to 2010); **R²**- Stability index; **00**-reference year 2000; **%**- Share of...; **Fa**- Farms; **Pf**- part time farms; **Uaa**- Utilized Agricultural Area **Fa: 5, 5-10, 10-20, 20ha**- farms with UAA < 5, from 5 to 10 & from 10 to 20, and > 20 hectares; **Gr**- Grassland; **Lsd**- Livestock density; **Tour_bed**- Tourist bed-intensity (tourist-beds/population); **empl (2S, 3S)** Employment (2nd & 3rd sector); **pop_den** Population density.

The regression analysis (Table 2) demonstrates that the agricultural parameters, tested both as dependent and independent variables on agro-structural change, have a major impact.

Besides, some regression models show a strong impact from socio-economic variables, like employment or tourism, on the change of part-time farms (Pf) or small scaled farms (< 5ha). The regression models confirmed that employment in general and in the second sector in particular are clearly decisive for part time and small scaled farms (Table 2). On the other hand, tourist bed intensity (tourist beds /population) had only a minor role for explaining the changed share of farms smaller than 5 ha.

DISCUSSION AND CONCLUSIONS

Results underline that not only the considered agricultural parameters vary strongly across the Alps at municipal level, but also the trends in agro-structural change and their driving forces. Even within NUTS3 regions, varying patterns are observable. For explaining the dynamics of the agricultural sector, compound agro-structural factors gained obviously a greater relevance than socio-economic ones. However, their impact cannot be denied. These findings suggest that locally adapted interventions considering socio-economic issues, like CLLD, might be effective instruments for steering agro-structural change. Thus, it appears worthwhile to monitor data at municipal level. Yet, it has to be kept in mind that extraordinary factors, not detectable by statistics, can locally influence the key factors of the agricultural sector. In future research, the impact of different kinds of interventions on the sector's development is to be investigated.

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