



# **DEMOGRAPHIC CHANGES IN THE ALPS**

Report on the state of the Alps

**ALPINE CONVENTION**  
**Alpine Signals – Special Edition 5**

# IMPRINT

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**Graphic design:** De Poli & Cometto - Belluno - Italy

**Printing:** Stampatori della Marca - Castelfranco Veneto - Italy

**Translations:** INTRALP

**Cover Photo:** T. Borghetti - Autonomous Province of Trento - Archive Department of forests and fauna

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ISBN 9788897500216



Carbon compensated  
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energy sources in Italy.

2015 | GAN-93-AKB

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This report was approved by the Alpine Conference at its XIIIth meeting in Turin, held on 21 November 2014.

The preparation of this report was coordinated by the Italian Presidency of the ad-hoc expert group in coordination with the Permanent secretariat of the Alpine Convention.

The text has been drafted by the Italian Presidency of the *ad-hoc* expert group and its members, with the coordination of the Permanent secretariat.

The report includes different theme analyses; the authors of these analyses are reported in the text.

Different European Territorial Cooperation Projects were involved to prepare the text and collect good practices; contributors from the ETC Projects are listed below.

The maps were prepared by the Institute for Regional Development and Location Management of Eurac research.

This report builds upon the preliminary assessment carried out by the Working Group of the Alpine Convention on Demography and Employment.

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*OPEN-ALPS* (Antonio Ballarin Denti, Chiara Gandini)

*PADIMA* (Maria Grazia Pedrana, Massimo Bardea)

*PUSEMOR* (Massimo Bardea)

*RE-TURN* (Nuria Mignone)

Special thanks for the active contribution provided by Working Group Demography and Employment

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(Oliver Bender, Sigrun Kanitscheider)  
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## ACRONYMS

EEA	European Environment Agency
AC	Alpine Convention
CIPRA	Commission Internationale pour la Protection des Alpes (International Commission for the Protection of the Alps)
ESPO	European Spatial Planning Observatory Network
ETC	European Territorial Cooperation
EGTC	European grouping of territorial cooperation
INSEE	National Institute of Statistics and Economic Studies
INTERREG	Interregional Cooperation Programme
ISCAR	International Scientific Committee on Research in the Alps
LAU	Local Administrative Units
LEADER	Liason entre les Actions de Développement de l'Economie Rurale (Links between the rural economy and development actions)
NUTS	Nomenclature des Unités Territoriales Statistiques (Nomenclature of Territorial Units for Statistics)
WHO	World Health Organization

## FOREWORDS

Alpine valleys appear today as a landscape moulded by centuries of human settlements and operations, by populations that have lived and still live in symbiosis with the mountain environment, made up of natural resources and elements that form a solid foundation for local economies, and yet often places where life is not easy.

During the 20th century, population size and structure and the related dynamics had to face significant changes. On the one side, many areas were affected by extensive emigration and depopulation developments, while the number of inhabitants grew significantly in other areas, accompanied by growing urbanization.

It is certainly incumbent on the Alpine Convention and its Contracting Parties to not remain indifferent to these changes. In fact, they should set the stage to govern these processes, protect the Alps and the possibility to live in this area.

In order to manage an area, it is necessary to know the size and reasons for these changes, the drivers behind them and good practices to deal with them.

By means of this Report, for which Italy chaired the analysis and drafting activities, our intention is to provide Alpine decision-makers with the necessary *know-how* to consider demographic changes, the causes that affect them and their consequences.

**Barbara Degani**

*Undersecretary at the Italian Ministry of Environment, Land and Sea,  
Presidency of the Alpine Conference 2013-2014*

This Fifth Report on the State of the Alps tackles a crucial issue for the Alps: demographic change. The Alps are a dynamic living space, where the comprehensive interaction between the environment and human presence has shaped the landscapes and cultures for centuries. The alpine population plays a central role in these dynamics, be it through its traditions and innovations, its cultural and linguistic richness, its economic activities, and its intensive interactions with the surrounding regions. This role of the Alpine population is highlighted in the Declaration on Population and Culture of the Alpine Convention, adopted in November 2006, through which the ministers of the Member States have recognised the need to establish a people-centred, sustainable development policy focusing on the needs of the people who live in the Alpine area.

There is an on-going and dynamic evolution in the presence of people in the Alpine territory. Some 150 years ago, the population in the Alps was about half the current size. Today, overall population growth and depopulation of certain areas co-exist next to each other and population density varies dramatically within our region. Moreover, novel phenomena like the so-called "new highlanders" are becoming increasingly visible. In sum, the current Report on the State of the Alps presents a complex and fascinating picture and provides clear and updated data to decision-makers and other stakeholders. The Report presents in an exhaustive way the most recent population developments at alpine level. Moreover, analyses on the labour market and education – both of which are closely related to demographic dynamics – are included.

Looking back at the past two years of intense work on the drafting of the report, I would like to congratulate all the experts who have contributed to this report for the results achieved. I also wish to express my sincere gratitude to the Italian Presidency of the Alpine Convention, the president of the Working Group, Dtt. Saverio Gazzelloni, and his team from ISTAT, but also the staff of the Permanent Secretariat for their tireless efforts. I am confident that this report, which is the outcome of all these joint efforts, will serve as an important tool for improving the knowledge of demographic challenges in the Alps and for developing and implementing appropriate policy responses.

**Markus Reiterer**

*Secretary general of the Alpine Convention*

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## FOREWORDS

The commitment of the Alpine Convention with respect to population and demography dates back to the beginning of the activities mentioned in the treaty, since this is the first theme mentioned under clause 2 of article 2 of the Framework Convention and since this is the object of the Ministers' Declaration "Population and Culture", that was promoted by Italy.

Italy, at the same time, assigned great significance to demographic change and to the labour market, as was well demonstrated starting from 2009, the year when it began presiding the Working Group on Demographics and Employment, established by the 10th Alpine Conference (Evian, France). Activities and documents produced by this working group, and the various exchanges of views with the general public and with stakeholders, laid the foundations to draft this 5th Chapter of the Report on the State of the Alps. The commitment of the Italian Ministry for the Environment, together with all the institutions that signed the Memorandum of Understanding to support the Italian Presidency of the Alpine Convention for the years 2013-2014 also meets the strong interest shown by the Italian Alpine areas that have been dealing with even very evident situations of people leaving the valleys for decades.

We are convinced that the Alpine population, considering the effort made to protect local areas and the ecosystem services to ensure their quality and continuity, must be given the opportunity to be able to live in mountain areas with an adequate level of services and opportunities, through stronger solidarity with those who live in the plains and in big cities. Based on this, we wanted to analyse demographic change starting from the *driving forces* that move them, and disseminating good practices that can be replicated.

I would like to particularly thank the Italian Institute of Statistics ISTAT, the University of Torino, EURAC, the Permanent Secretariat and the Contracting Parties to the Alpine Convention and their experts for the outcome of this work. During these years, they have skilfully and patiently carried out and developed the Convention activities about this subject.

**Paolo Angelini**

*Italian Ministry of the Environment, Land and Sea  
Presidency of the Permanent Committee of the Alpine Convention 2013-2014*

The focus of the Fifth Report on the State of the Alps (RSA) is demographic changes, and it has been prepared by an ad hoc Expert Group set up by the Ministers during the 12th Conference of the Alps in 2012. The experts in the group come from various countries in the Alps, working in close collaboration with the Italian Presidency and the Permanent Secretariat of the Alpine Convention.

As the President of the Working Group, I want to extend my thanks to the experts for their work and for the quality of their contributions. The meetings and internal or public debates have always been strongly characterised by a constructive spirit of trust and cordiality. The resulting report comes from everyone's input, despite the differences in type and intensity of commitment that each contributor has been able to provide.

The Report aims to represent the current situation of demographics in the Alps by analysing the latest data available on the main indicators of the population. Also considered have been the basic indicators of the labour market and certain indicators on services: these are important drivers for demographic change.

Comparisons with some of the figures of a decade earlier have also revealed the main trends in progress.

The material has been put together with the contribution of partner countries and was taken from the official statistics of the various countries, giving the final results maximum weight and authority.

Another strong point of this collaboration concerns the harmonising of the data collected not just in terms of the indicators selected and shared but also as regards the extent of territorial detail (all the way down to Municipal level), the reference period and the definitions used for the various indicators. Such features have ensured the comparability of the data provided by the contributor countries.

An interesting overall picture has emerged, surely interesting and useful to the policy makers. This is the hope that I can express, also on behalf of the experts.

**Saverio Gazzelloni**

*Istat - Italian National Statistical Institute  
Presidency of the ad-hoc expert group*

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# 1. INTRODUCTION

The Alpine Convention is an international treaty among the Alpine countries (Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia and Switzerland) and the EU, aimed at promoting sustainable development in the Alpine area and at protecting the needs of its inhabitants. It takes into account complex environmental, social, economic and cultural issues.

The Alps, with their biodiversity, water and wood reserves, are the natural, cultural, living and economic environment for more than 14 million people and an attractive tourist destination.

## 1.1 THE ROLE OF DEMOGRAPHY IN THE ALPS AND THE CONTRIBUTION OF THE ALPINE CONVENTION

The Alps represent an example of human-shaped environment, whose characteristics are worldwide famous and appreciated. Their landscape was shaped by centuries of widespread human presence and the related social, cultural and economic production. In the past, each Alpine valley with acceptable climatic conditions was inhabited and taken care of by populations whose main aim was to keep the living and working environment safe and productive. Nevertheless, in the 20th century, wide areas of the Alps experienced a severe depopulation trend, which resulted in an increased difficulty in providing basic services to the local population, thus posing their living standards at risk. A persistent exacerbation of this negative trend, if prolonged in time, can trigger negative cycles not only for the resident population, but also with respect to other issues, such as tourism and hydrogeological safety. Therefore, in order to maintain the specific Alpine characteristics of a populated mountain environment, the presence of local population in the Alps needs to be safeguarded and preserved. At the same time, in order to preserve their attractiveness not only for tourists, the Alpine areas should provide jobs, services and social cohesion.

Socioeconomic and cultural aspects are considered key by the Alpine states for the implementation of an integrated policy ensuring the protection and sustainable development of the Alps. The importance of this topic for the contracting parties is clearly highlighted in the Declaration on Population and Culture of the Alpine Convention (Alpine Convention, 2006). According to this Ministerial Declaration, the Alps are a living and economic territory, whose inhabitants should benefit from a wide access to services such as transport, health and education. The Alpine population should also have the opportunity to work in the Alpine territory, thus strengthening

local value chains and aiming at creating a social and environmentally-friendly regional development.

The establishment of the political, economic and infrastructural conditions that the Alpine territory needs in order to be competitive, attractive and sustainable in the 21st century should start from an exhaustive knowledge of the Alpine population and an analysis of its characteristics and movements. This is why demographic change is one of the five priority areas of the Multiannual Work Programme 2011-2016 of the Alpine Convention (Alpine Convention, 2011). In order to tackle this issue, an *ad-hoc* expert group was established by the Alpine ministers at the 12th Conference of the parties in 2012 with a mandate to prepare the Fifth Report on the State of the Alps on demographic changes and their driving forces.

The expert group continued the work started by the Working Group Demography and Employment set up by the 10th Alpine Conference in 2009, which prepared a first overview on the demographic framework of the Alps. This overview was the starting point for the work of the *ad-hoc* expert group and provided a basis for more specific research studies and activities. To prepare the Fifth Report on the State of the Alps, good practices dealing with demographic changes and their impacts on labour market and the provision of services were also collected, in order to provide examples to policy makers on how to deal with demographic and employment issues.

The *ad-hoc* expert working group which drafted this report includes representatives from the Contracting Parties and observers, academic experts and other stakeholders.

## 1.2 AIMS OF THE REPORT

This report addresses the following questions: how to deal with the demographic developments in the Alps? How can demographic changes be influenced in order to keep the Alpine areas inhabited?

In order to give a practical answer to these questions, the first step is the creation of a common framework of knowledge, with comparable data and common thoughts, including a set of good practices regarding demographic changes, their causes and their consequences. In this respect, the main objective of the *ad-hoc* expert group on demographic change (and its driving forces) established by the Alpine Convention was to prepare the Fifth Report on the State of the Alps by the 13th Conference of the Contracting Parties, held in Turin in 2014.

The main aims of this report are to:

- clarify and analyse changes in terms of population size, distribution, structure;

- observe labour market dynamics and their connections with demographic changes;
- take into account the roles of different levels of education and training and their effects on society;
- recognise strengths and weaknesses in the various areas and chart them;
- focus on some theme analyses that cover specific aspects observed in particular areas (such as urbanisation in the Alpine area or “new mountain inhabitants”);
- collect good practices selected on the basis of specific criteria;
- provide guidance to policy makers regarding the use of best practices and their transferability.

In order to tackle all the topics listed above, the report is structured into four main chapters and an introduction:

- Chapter 2 - Demographic Overview. This chapter focuses on the status quo analysis of the population in the Alpine area, its structure (broken down by gender, age and origin) and the dynamics that have affected population growth or decrease in the last decade.
- Chapter 3 - Employment and education. This chapter aims at describing the structure of the Alpine labour market through an analysis of the activity, employment and unemployment rates. Moreover, the chapter includes a description of the level of education of the Alpine population.
- Chapter 4 - Some applications on demographic and labour market data. Two statistical methods have been applied in this chapter, in order to provide an overall interpretation of all analysed developments.
- Chapter 5 - Population and services. This chapter describes the status quo of specific welfare services that can drive population to remain on the territory. In particular, the chapter describes the status of health care facilities and day care services in the Alpine area.

The report also contains six in-depth theme analyses on the following topics:

- An analysis of the changes in the geography of migration and the new orientation of integration processes in Austrian rural areas (Chapter 2).
- A study on immigration to and migration from the Alps with a specific focus on “new highlanders” (Chapter 2).
- An analysis on the social features of the Italian Alpine region as a mosaic of local economies (Chapter 3).
- The contribution of European studies to the analysis of the Alpine situation (Chapter 3).
- A focus on hospitals in the Alpine area (Chapter 5).
- An analysis of the public transport system in South Tyrol with a focus on mobility and accessibility (Chapter 5).

### 1.3 GEOGRAPHICAL ANALYSIS

The availability of suitable local data is one of the main challenges when trying to compare demographic, labour and education developments in the Alpine area<sup>1</sup>. In order to be able to account for detailed differences and developments, the level of geographical detail selected for the report is LAU 2, namely the municipal level. Population data were therefore collected at this geographical level of detail and, together with a series of demographic indicators, they are represented in several maps throughout the report. Concerning education and labour market indicators, available data were not homogeneous in the Alps: for Germany and Switzerland the highest level of detail displayable is the NUTS 3 level<sup>2</sup>. Therefore, with respect to employment and education, data for Switzerland and Germany have been mapped separately from other countries, whose data are available at LAU 2 level.

*Note: the indicators processed are fully described in Annex A at the end of the report.*

<sup>1</sup> The term “Alps” and “Alpine region” used in this report refer to the territory included in the perimeter of the Alpine Convention.

<sup>2</sup> In Germany, this level corresponds to the rural districts (Landkreise) and the urban districts (Kreisfreie Städte). In Switzerland, this level corresponds to the Cantons.

## The Declaration on Population and Culture of the Alpine Convention

Although demography is not the object of a specific protocol, the ministers of the Contracting Parties to the Alpine Convention have tackled this issue in the declaration "Population and culture", which was adopted in November 2006.

With this declaration, the Alpine Convention recognises the socio-economic and cultural aspects of the Alpine area as essential in order to develop an integrated policy for sustainable development in the Alps. Based on the awareness of the impacts that demographic change can have on the living and working conditions in the Alps and in order to give the Alpine population the right to live in the Alpine area on a permanent basis and to engage in economic activities, the Declaration on Population and Culture highlights a series of principles related to five main topics: community awareness and cooperation, cultural diversity, living environment, quality of life and equal opportunity, economic area and the role of urban and rural areas.

Regarding *Community awareness and cooperation*, the declaration states that Alpine and non-Alpine populations are both responsible for the maintenance of the Alpine unique culture. Accordingly, the declaration emphasises the principle of facilitation of communication among the various linguistic groups and among inhabitants of the Alpine and non-Alpine areas.

The topic of *Cultural diversity* is tackled by the Declaration on Population and Culture through several principles, mainly affirming the priority of research, maintenance and development of the physical tangible and non-physical intangible cultural heritage, the promotion of linguistic diversity and the support of the artistic expression of Alpine themes.

Several principles are encompassed under the umbrella topic *Living environment, quality of life and equal opportunity*: first of all the principle of the maintenance and modernisation of the existing settlements, implemented according to the specific characteristics of each site. The principles then emphasise the importance of maintaining and developing decentralised primary health care and education services also in remote areas. This also applies to leisure activities and cultural programmes, whose importance is emphasised not only for tourists, but also for local residents. Finally, the principle of facilitating access of the Alpine population to modern communication technology is underlined.

Regarding the *Economic area*, the declaration on Population and Culture includes principles that focus on the implementation of policies which could foster regional development through the use of potential linked to the territory, on the strengthening of local value chains and on the development of measures aiming at ensuring attractive jobs in the Alps.

The last topic is the *Role of urban and rural areas*. It encompasses principles that, on the one hand, emphasise the role of the Alpine cities as centres of social, cultural and economic activities. On the other hand, the role of rural Alpine areas is recognised on the basis of their heterogeneous economic, natural and cultural functions. The principle of building and strengthening relationships between the different types of Alpine areas and between Alpine and non-Alpine areas is then emphasised.



## 2. DEMOGRAPHIC OVERVIEW

The demographic changes which occurred and are still occurring in the Alpine countries are also reflected in the territory of Alpine municipalities, but unevenly and with different signs depending on the different territories. All in all, the resident population as a whole has increased, with a higher incidence of foreign inhabitants (often in combination with negative natural changes). In some areas, however, these processes were not enough to slow down population ageing and a decline of working-age population. In other areas, instead, high birth rate and foreigner inflow may explain the relatively young age of the resident population. All these aspects have generated a complex mosaic, where the main road networks and tourist site attractiveness have contributed to attract people and have accelerated these developments.

### 2.1 RESIDENT POPULATION AND POPULATION DENSITY

As of 2013, the Alps were inhabited by 14,232,088 people on a 190,717 km<sup>2</sup> territory, with an average population density of 74.6 inhabitants per km<sup>2</sup> (table 1). This makes the Alps one of the less populated areas in central Europe (although countries such as Greece and Ireland have similar population densities) but also one of the most densely inhabited mountain areas in the world (Permanent Secretariat of the Alpine Convention, 2007). The countries that contribute the most in percentage terms to the overall Alpine population are Italy (30.7%) and Austria (23.3%). France accounts for 18.9% of the Alpine population, followed by Switzerland (13.6%), Germany (10.4%) and Slovenia (2.7%). Monaco and Liechtenstein, being also in terms of surface by far the smallest Alpine countries,

contribute with percentages below 1%. Table 1 shows the contribution of each Alpine country in terms of surface area and population.

The Alpine population is spread on areas of different sizes; therefore, in order to better assess the anthropic pressure in a specific area, population density (namely the ratio between the population living in a territory and the area in km<sup>2</sup> of the territory) can be used. While, on the one hand, a high level of population density can be associated to a higher pressure on the environment and therefore to a possibility of degradation of the environment itself, on the other hand, in the Alpine area, where orographic constrains limit the presence of permanent population in a wide part of the territory, a certain level of population density may be connected to the persistence of the population in the territory and therefore may represent a guarantee of the continuity of its presence as well as the safeguard of its cultural heritage.

The analysis of population density in the Alpine territory at LAU-2 level (figure 1) reveals that higher population concentrations in relation to the municipal area are mainly found in peri-Alpine areas (e.g. in the flatlands of the Italian foothills, in the French Côte d'Azur and Haute-Savoie, along the Swiss Pre-Alps, in Upper Bavaria, in the surroundings of Vienna and in the Slovenian valleys which host the major transport corridors) and in wide valley floors such as those of the rivers Adige, Rhone (Valais), Alpenrhein, Adda (lower Valtellina), Inn, Drava and upper Sava.

A particular case is the Principality of Monaco, characterised by the highest population density in the world. In any case, from a demographic point of view, Monaco is a *sui generis* situation when compared with the rest of the Alps.

Unlike those located in the largest Alpine valleys and in peri-Alpine areas, the majority of the municipalities with

	Alpine inhabitants	Surface (km <sup>2</sup> ) of the Alpine area	Alpine population density	National population density
Austria	3,318,045	54,592	60.8	100.8
France	2,683,801	40,801	65.8	103.4
Germany	1,476,519	11,160	132.3	225.3
Italy	4,364,538	51,995	83.9	201.8
Liechtenstein	36,838	160	230.2	230.2
Monaco	36,950	2	18,475	18,475
Slovenia	385,973	6,796	56.8	101.6
Switzerland	1,929,424	25,211	76.5	201.0
Alpine region	14,232,088	190,717	74.6	-

Table 1: Population, surface, and population density in the Alpine region. Sources: National statistical offices, 1 January 2013, with the exception of France, whose data refer to the 2010 national census. The figures for Slovenia consider only the portion of municipalities located in the perimeter of the Alpine Convention.

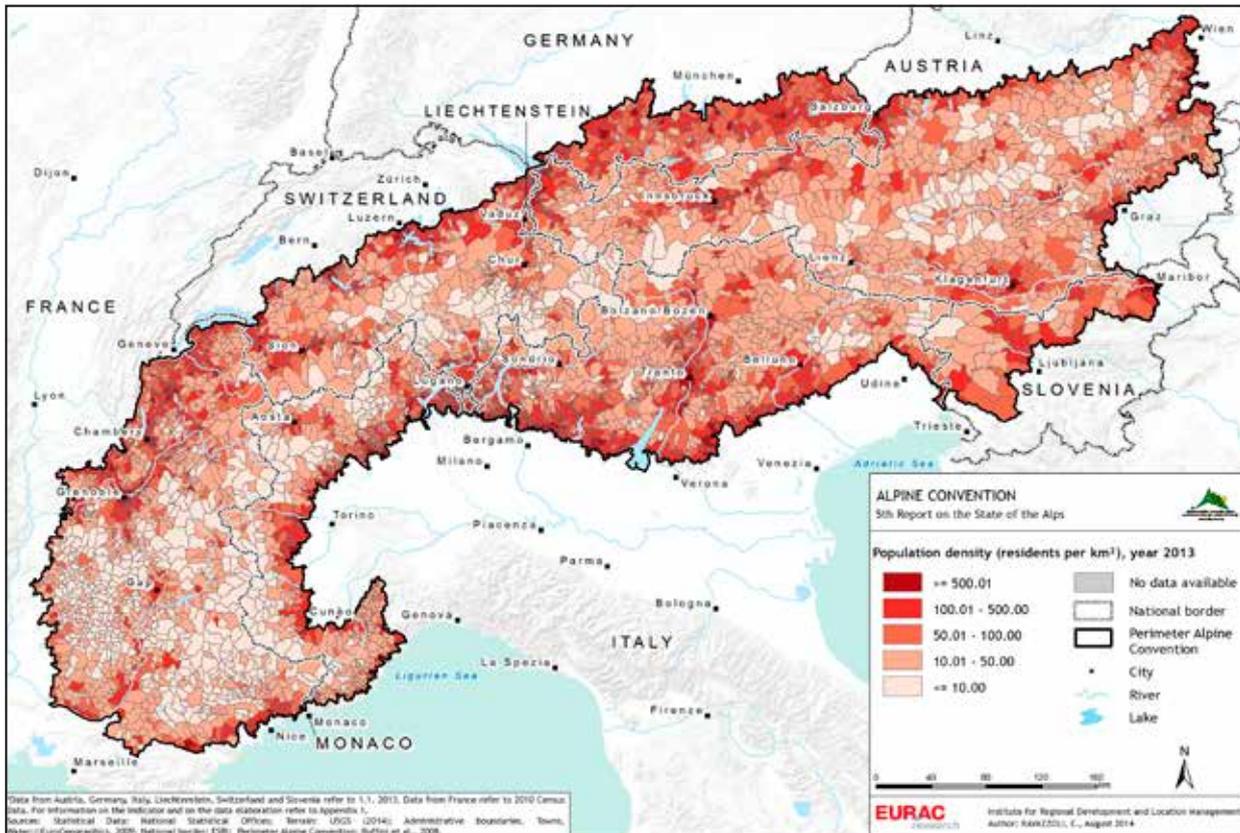


Figure 1: Population density (inhabitants per km<sup>2</sup>).

low population density are located in poorly accessible territories. In particular, these areas are close to the central mountain ridge and are located further away from the metropolitan areas of the plains, especially in the Maritime, Provence, Cottian, Dauphiné, Lepontine, Western Raethian, Tauern, Carnic and Julian sectors of the Alps.

According to data, topography plays an important role in the distribution of human settlements. Independently from the municipal average density, the population appears to be more concentrated in valley floor areas as they allow easier settlement and offer more spaces for infrastructure, housing and productive activities. Even in generally scarcely

populated areas, valley floor areas are characterised by high population density. In these areas, population density reaches similar levels to non-Alpine regions, taking into account the area of permanent population settlement.

This concentration of the population density in valleys is a recent tendency related to the most recent century: in the 1900s, when the Alpine economy was strongly based on non-mechanised agriculture, higher rates of the population used to concentrate preferably in south-oriented mountain slopes, which are more sunny, warmer, and closer to freshwater springs and mountain pastures and are less exposed to flood hazards (Bätzing, 2005).

## National contributions

### AUSTRIA

In Austria, despite the fact that 65% of the national territory is situated within the perimeter of the Alpine Convention, on 1/1/2013 just 39% (3.3 million people) of the total population (almost 8.5 million people) lived within this Alpine area. Austria's largest settlements are located outside the Alpine region, although very close to the Alps or with their suburban zones extending into the Alpine area (Vienna, Graz). Smaller agglomerations like Salzburg (ranking 4<sup>th</sup> nationally in number of inhabitants), Innsbruck (5<sup>th</sup>) and Klagenfurt (6<sup>th</sup>) are located within the Alpine area. Population data in Austria refer to the registered residence of the inhabitants.

		Alpine area	Non-alpine area	Austria total
Total resident population	absolute	3,318,045	5,133,815	8,451,860
	relative ( %)	39.3	60.7	100.0
Area	absolute (km <sup>2</sup> )	54,592	29,287	83,879
	relative ( %)	65.1	34.9	100.0
Permanent settlement area	absolute (km <sup>2</sup> )	11,566	20,874	32,440
	relative ( %)	35.7	64.4	100.0
Population density (residents per km <sup>2</sup> )		60.8	175.3	100.8
Population density referred to the permanent settlement area (residents per km <sup>2</sup> )		286.9	246.0	260.5

Table 2: Resident population and surface area, Austria, 1/1/2013.

Population density on 1/1/2013 was about 101 people per km<sup>2</sup> for the whole of Austria. The Alpine area accounted for only 61 people per km<sup>2</sup>, while the non-Alpine area had 175 people per km<sup>2</sup> on average. Although the size of municipalities is much larger in the Alpine area than in the non-Alpine region, this picture is misleading, as the habitable area is usually much smaller in the Alps than outside. For a better approximation of population density, the permanent settlement area has to be taken into account. When looking at the permanent settlement area instead of the whole area of the municipalities, a totally different picture emerges: only about 36% of Austria's permanent settlement area is situated within the Alps – compared to 65% of the entire area of all municipalities. In contrast to the population density referred to the whole territory, the population density referred to the permanent settlement area is even higher within the Alps (286.9 inhabitants per km<sup>2</sup>) than outside (246.0 inhabitants per km<sup>2</sup>). Given the large amount of uninhabitable land in the Alps, it is not really surprising that – if just the permanent settlement area is taken into account – the Alpine area of Austria is more densely populated than the non-Alpine area.

Regarding regional differences, it can be stated that, within the Austrian Alpine territory, population density is particularly high in the federal capitals Salzburg, Innsbruck, Klagenfurt and their surroundings as well as in the Inn Valley in Tyrol and the Rhine Valley in Vorarlberg. On the other hand, remote rural areas - as for example some parts of Styria - are very sparsely populated.

### FRANCE

The French Alps cover around 40,000 km<sup>2</sup>, 2 NUTS 2 areas (the regions Rhône-Alpes and Provence-Alpes-Côte d'Azur), 7 NUTS 3 areas (departements de Haute-Savoie, Savoie, Isère, Drôme, Hautes-Alpes, Alpes-de-Haute-Provence and Alpes Maritimes), and 1,749 LAU 2 areas (*communes*). In 2010, the French Alps had around 2,700,000 permanent residents; due to tourists, the population more than doubles during the winter and summer holidays.

Broadly speaking, three very different areas can be distinguished within the French Alps:

- the central part of the territory, which is composed of sparsely populated mountain areas (fewer than 10 inhabitants per km<sup>2</sup>), with a mainly tourist economy. Some of the deep valleys in this area have a long industrial history (due to the availability of hydroelectric power), but this activity is in sharp decline.

- The southern edge of the massif, where population density is higher because of commuting inhabitants who work in the large cities bordering the Mediterranean sea (e.g. Marseille, Toulon, Nice). Human pressure on the coast is very high, leading part of the population to move more and more inland, 30 to 50 km away from the city centres.
- The largest part of the population of the French Alps lives in the non mountainous northern part of the area, under the influence of four important cities: Grenoble (675,000 inhabitants in the large urban area and 157,000 in the city), Annecy (219,000), Chambéry (216,000) and Geneva. Geneva is in Switzerland, but its urban area extends to France: around 300,000 people live in the French Geneva urban area, 60,000 of whom commute every day to work in Geneva. This part of the French Alps is growing fast, demographically and economically, and it is densely populated; its population is younger, with high levels of education and high activity and employment rates. Industry still plays an important role in parts of the territory (mechanical engineering industry in the Arc valley, for example), but tertiary activities (human services, construction works, business, research, etc.) dominate, both in the cities and in their suburban surroundings. The presence of Geneva and Grenoble (a major academic and technology-industry town specialising in nanotechnology and electronic industry) favours the growth of the knowledge economy.

## GERMANY

The German Alps extend over a total of thirteen NUTS 3 administrative units, all located in the state of Bavaria: ten districts (Landkreise) and three urban districts (Kreisfreie Städte). Taking into account the smaller LAU 2 units, and excluding the urban districts, the German Alpine area encompasses 282 municipalities. The German area of the Alpine Convention counts 1,476,519 inhabitants (year 2012), which correspond to 10.4% of the total population of the Alpine Convention. Moreover, the territory of the German Alps covers approximately 11,160 km<sup>2</sup> - 6% of the overall Alpine Convention area.

Concerning population distribution differences among the districts, the most populous German Alpine district is Rosenheim, with 247,133 inhabitants, while Lindau (Lake Constance) is the least populated (78,641 inhabitants). At municipal level, the German Alps present a smaller variability in terms of population: a low incidence of very small and small municipalities below 1,000 inhabitants - which make up 5.3% of the total municipalities - and a high share (66.3%) of municipalities ranging from 1,000 to 5,000 inhabitants can be observed. All in all, nearly 90% of the German Alpine municipalities count fewer than 10,000 inhabitants.

Taking into account the municipal level, it can be observed that the German Alpine municipalities and districts are in general more densely populated than the overall Alpine average. An analysis at LAU 2 level shows that, while nearly 38% of German Alpine municipalities are less densely populated than the average Alpine ones, the majority of German Alpine municipalities (62.4%) are more densely populated than the overall Alpine average, and more than one third (36.5%) are more densely populated than the German Alpine average (approximately 132 inhabitants/km<sup>2</sup>).

## ITALY

Spread all over the territory, with some concentrations, the Italian Alpine population is mainly present along the main roads, in the valleys and in the plain.

The Italian Alpine arc extends over seven of the twenty Italian regions: Piedmont, Aosta Valley, Lombardy, Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia and Liguria. It covers - totally or partially - 24 of the 110 provinces and 1,749 municipalities, corresponding to 21.6% of the 8,092 Italian municipalities existing on 1 January 2013. The Italian Alpine area, measured considering the municipal boundaries, is equal to 51,995 km<sup>2</sup> and represents 17.2% of the total area of the country (302,073 km<sup>2</sup>).

In terms of population, on 1 January 2013 the residents in the Alpine municipalities amounted to 4,364,538, 7.3% of the total Italian resident population (around 59 million). Almost three quarters of the Alpine population reside in the municipalities of the three NUTS 2 regions Lombardy (29.6%), Trentino-Alto Adige (23.8%) and Piedmont (20.0%).

At NUTS 3 level, most of the Alpine population is concentrated in the two Autonomous Provinces of Trento and Bolzano/Bozen (12.2% and 11.7% respectively): these are two completely Alpine provinces, since 100% of the municipalities in the provinces are part of the Alpine area. The municipalities of Trento (TN) and Bolzano/Bozen (BZ), with 115,540 and

103,891 inhabitants respectively, are the two most populous communities in the Alps and the only two that exceed the threshold of 100,000 inhabitants. They are provincial capitals like the municipality of Biella, which immediately follows in the ranking (43,675 inhabitants). The municipality of Bassano del Grappa (in the province of Vicenza), with 43,127 residents, ranks fourth in terms of population. Most of the municipalities of the Alpine area are of medium, small or very small size: 90% of them have a population of fewer than 10,000 inhabitants and 24% under 500 inhabitants. The municipalities with the lowest number of residents are mostly common in Piedmont and Lombardy: the municipalities of Pedesina (Sondrio), Moncenisio and Ingria (Torino), Morterone (Como), Briga Alta (Cuneo), Menarola (Sondrio) and Cervatto (Vercelli), which all have fewer than 50 inhabitants.

In the entire Alpine area, population density is lower than in the rest of Italy. The number of inhabitants per km<sup>2</sup> in the Alpine area is approximately 84, while the national average is more than double that amount (201.8 inhabitants per km<sup>2</sup>). The maximum value at NUTS 2 level is observed in the Alpine municipalities of Lombardy (132.0 inhabitants per km<sup>2</sup>), the minimum in the municipalities of the Aosta Valley (39.2), where the most extensive uninhabitable areas in Italy are located, because of high altitudes and glaciers. Some variability can be observed at NUTS 3 level: the most densely populated provinces with Alpine areas are Gorizia (343.0 inhabitants per km<sup>2</sup>) and Varese (337.0); Imperia is the least densely populated (31.0 inhabitants per km<sup>2</sup>), followed by Aosta and Udine (39.0). Most of the municipalities (63.8%) have a population density of under 100 inhabitants per km<sup>2</sup>, 29.6% between 100 and 500 and only 6.6% of more than 500. The most densely populated Alpine municipalities are Fiera di Primiero (Trento), Fiorano al Serio (Bergamo) and Malgrate (Como), all with more than 2,000 inhabitants per km<sup>2</sup>. The town of Briga Alta (Cuneo) has the lowest population density (52.0 inhabitants per km<sup>2</sup>). In general, the municipalities with the highest population densities are concentrated along the outer perimeter of the Alps, in the valleys, along the main rivers and/or roads, highways and railways (e.g. along the Adige Valley - and thus along the A22 motorway - in the lower part of Valtellina, in the Piave Valley).

## SLOVENIA

In Slovenia, 62 municipalities are located in the area of the Alpine Convention (45 entirely and 17 partially, as shown in figure 2). Geographically, this amounts to 6,796 km<sup>2</sup>, i.e. one third of the country (33.4%).

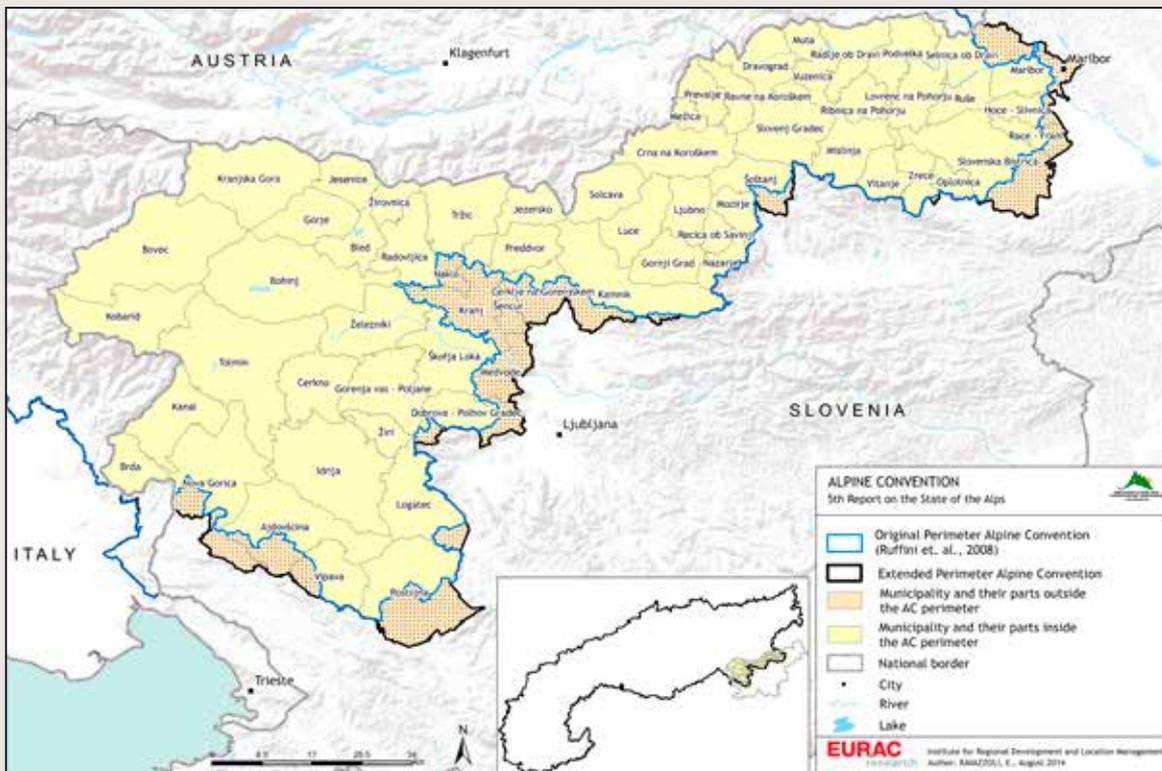


Figure 2: Municipalities entirely and partially located in the perimeter of the Alpine Convention (EURAC, 2014).

On 1 January 2013, Slovenia counted 2,058,821 inhabitants, of which 1,019,061 male (49.5%) and 1,039,760 female (50.5%). With respect to the Alps, in early 2013, 663,739 residents lived in the Slovenian municipalities of the Alpine Convention; this accounts for 32.2% of the total resident population of Slovenia. At that time, the resident population consisted of 329,380 men and 334,359 women (50.4%). This figure is an overestimation since it takes into account the total resident population in all municipalities, including those that are only partially located in the Alpine Convention area. The actual resident population of the Alpine Convention area is therefore significantly smaller and amounts to 385,973 inhabitants, because larger urban centres such as Maribor, Kranj, Nova Gorica and Postojna are located outside the Alpine Convention area (see table 3).

It is worth considering that 284,071 residents live in the area of the 45 municipalities that are located entirely in the Alpine Convention area, while 379,668 residents live in 17 municipalities that are only partially located in the Alpine Convention area.

	Total resident population (absolute values)	Women resident population (absolute values)	Women per 100 residents
Slovenia	2,058,821	1,039,760	50.3
Municipalities (LAU2) within the area of the AC – TOTAL:	663,739	334,359	50.4
entirely within the AC area	284,071	142,479	50.2
partly in the AC area	379,668	191,880	50.5

Table 3: Resident population in Slovenia, 1/172013. Source: Statistical Office of the Republic of Slovenia.

The areas with the lowest and the highest population densities in Slovenia are located in the Alpine Convention area. Scattered and relatively sparse settlements are typical for Slovenia in general. In early 2013, there were, on average, 101.6 residents per km<sup>2</sup> in Slovenia. Slovenia ranks in the middle among the Member States of the European Union in terms of population density. The level of population density is highest in the municipality of Ljubljana with more than 1,000 residents per km<sup>2</sup>. In the municipalities of the Alpine Convention, a lower level of population density has been recorded than for Slovenia. In early 2013, there were 56.8 residents per km<sup>2</sup> in these areas.

Due to the natural conditions and the historical development of settlements, differences in population density between municipalities in Slovenia are very large. In general, municipalities with big cities, highly populated municipalities with small areas located in the periphery of major employment centres, and especially municipalities in the valley and lowland areas are the most densely populated. The same applies to the Alpine Convention area. The municipalities located on the outskirts of the Alpine Convention area and those that are only partially located in the Alpine Convention area are more densely populated. The population density in this area ranges from 755.1 residents per km<sup>2</sup> in the municipality of Maribor to 368.0 residents per km<sup>2</sup> in the municipality of Kranj. A high population density is also registered in municipalities that are mostly residential of nearby urban centres such as Šenčur (210.1 residents per km<sup>2</sup>), Hoče-Slivnica (208.4 residents per km<sup>2</sup>) and Medvode (204 residents per km<sup>2</sup>).

The most densely populated area in the Alpine Convention perimeter is located along the Ljubljana - Kranj – Jesenice traffic corridor, which is also one of the most urbanised areas in Slovenia. There are 282.0 residents per km<sup>2</sup> in the municipality of Jesenice, which is the most densely populated municipality located entirely in the Alpine Convention area, followed by the municipality of Radovljica with 159.0 residents per km<sup>2</sup>, Škofja Loka with 156.0 residents per km<sup>2</sup>, Bled with 113.3, and Žirovnica with 99.4 residents per km<sup>2</sup>. Higher population densities are also registered in municipalities located in other valley areas of the Alpine Convention area, in particular in the Meža Valley, the Savinja Valley, the Šalek Valley and in the Sava River valley area. The registered population density in these municipalities ranges from 50 to 100 residents per km<sup>2</sup>. Within this area, the municipalities in the Meža Valley are particularly densely populated – especially the municipality of Ravne na Koroškem, which is the second most densely populated municipality located entirely in the Alpine Convention area (180.0 residents per km<sup>2</sup>), followed by the municipalities of Mežica with 137.6 residents per km<sup>2</sup> and Prevalje with 117.3 residents per km<sup>2</sup>. In accordance with the state's strategic development documents, this area is located in the so-called "third development axis" (the first two being along the main traffic corridors of Koper – Ljubljana - Maribor and Jesenice - Kranj – Ljubljana - Novo mesto - Brežice). A high population density in the Alpine Convention area is also registered in the

municipalities located in the satellite area of Maribor, such as Hoče-Slivnica (208.4 residents per km<sup>2</sup>), Rače – Fram with 137.1 residents per km<sup>2</sup> and Ruše, with 118.8 residents per km<sup>2</sup>.

On the other hand, municipalities that are considered the most sparsely populated in Slovenia are also located in the Alpine Convention area. In 2013, 23 out of 62 municipalities in the Alpine Convention area (37.1%) had fewer than 50 residents per km<sup>2</sup>. All of these municipalities are located entirely in the Alpine Convention area. The most sparsely populated municipalities are located in the hilly and mountainous areas in the Alpine Convention perimeter. These areas include the three most sparsely populated municipalities in Slovenia in early 2013: Solčava with 5 residents per km<sup>2</sup>, Bovec with 8.7 residents per km<sup>2</sup> and Jezersko with 9.2 residents per km<sup>2</sup>.

The population density of municipalities in the Alpine Convention area coincides with natural geographical conditions and trends in human settlement development. It is characterized by an increasing urbanisation of the valley areas and an intensive suburbanisation of the surrounding and predominantly rural municipalities, where the phenomenon of mixed urban-rural settlement structure is occurring. In contrast, hilly and mountainous areas feature increased depopulation, together with explicit population ageing.

## SWITZERLAND

The total number of Swiss municipalities located within the borders of the Alpine Convention perimeter decreased from 856 to 755 between 2008 and 2012 due to administrative mergers. Taking the area of these Alpine municipalities as a basis, it can be calculated that the overall Swiss area included in the Alpine Convention corresponds to 25,211 km<sup>2</sup> and represents 62% of the total Swiss area (41,285 km<sup>2</sup>).

As far as the population is concerned, the total resident population in the Alpine Swiss municipalities amounts to 1,929,424 inhabitants. This represents around 24% of the total Swiss resident population, which amounts to 8.03 million.

At NUTS 3 (cantonal) level, the Alpine population is distributed as follows: the most populous cantons are Ticino and Valais; together, they contribute to more than 30% of the entire Alpine Swiss population. The Cantons of Bern, Lucerne, Grisons contribute each 10% of the overall Alpine Swiss population. The remaining 40% of the population lives in the other ten Alpine cantons.

The population is not homogeneously distributed and therefore different population density values can be observed both at cantonal and municipal level. For the whole of Switzerland, the average population density amounts to 201 inhabitants per km<sup>2</sup>; this figure is higher than the average population density in the Swiss Alpine areas (77.0 residents per km<sup>2</sup>). Nevertheless, significant differences in population density can be observed among cantons: in the cantons of Grisons, Uri, Glarus, Valais and Obwalden, which are particularly characterised by high mountains and are fully included in the Alpine Convention perimeter, the population density is lower than the Swiss Alpine area average. Cantons only partly included in the Alpine perimeter have lower population density values in the portions of territory within the Alpine Convention compared to the overall cantonal values; this suggests that, in cantons located partially in the Alps, the population tends to be concentrated outside mountainous areas. One exception is the Canton Lucerne, where a higher population density can be observed in the portion of territory located within the Alpine Convention. On a more detailed territorial level, the majority of the Alpine Swiss municipalities can be classified, on the basis of the resident population, as very small, small or medium: 96% of the 755 municipalities included in the perimeter of the Alpine Convention have, in fact, fewer than 10,000 inhabitants, and a significant share (28.8%) have fewer than 500. The biggest urban areas are the cantonal capitals of Lucerne in the Canton of Lucerne (79,478 inhabitants) and Lugano in the Canton of Ticino (56,038 inhabitants). The highest number of small municipalities with fewer than 100 inhabitants are in the Cantons of Grisons, Ticino and Valais, with the smallest Alpine Swiss municipality being Corippo in the Canton of Ticino (12.0 inhabitants).

Swiss Alpine municipalities are generally characterised by low population density: more than half of the municipalities (59.5%) have population density values below 100 residents per km<sup>2</sup>, while 27% of the municipalities have a population density level between 100 and 500. Only 13.8% of the Alpine Swiss municipalities have a population density of more than 500 inhabitants per km<sup>2</sup>. These higher-density municipalities are mostly located in the Cantons of Ticino, St. Gallen, Lucerne and Bern. At municipal level, the highest population density values can be observed for the municipality of Massagno in the Canton of Ticino (with a population density of 8,139 residents per km<sup>2</sup>), while the lowest can be found in the municipality of Mulegnes in the Canton of Grisons (0.8 residents per km<sup>2</sup>).

## 2.2 POPULATION STRUCTURE (GENDER, AGE, CITIZENSHIP)

In order to analyse the structure of the Alpine population, five main indicators have been selected and calculated on a municipal basis: the percentage of women, the number of foreign residents, the population ageing index, the percentage of the elderly population and the percentage of the working-age population. A summary of these indicators in the Alps, with a comparison with national data, is shown in table 4.

### 2.2.1 DISTRIBUTION BY GENDER

Distribution by gender is generally linked not only to the population's reproductive ability, but also to its structure by age and to the characteristics of the labour market. In the Alps, population distribution by gender does not differ significantly from national averages and is fairly balanced: in the Italian Alps, women account for 51.1% of the total population (51.6% on the whole national territory), in the Slovenian Alps they account for 50.4% (in comparison with a national average of 50.5%). In Liechtenstein women amount to 50.5% of the population, while in France the Alpine values are quite similar to the national average, with 50.9% of women on the total population in the Alpine territory and 51.6% at national level. The same applies to the Swiss

and German Alps, where Alpine figures in line with national averages can be observed. More details can be gained through the analysis of the municipal situation (figure 3), which shows a homogeneous higher concentration of women in municipalities in the Eastern Alps, whereas the situation in the Western part is absolutely heterogeneous.

The percentage of women on the total population can be explained through other indicators, such as, for example, the crude birth rate (paragraph 2.4) and the percentage of the elderly population (paragraph 2.2.2). In general, high birth rate figures increase the percentage of male population (statistically, 106 males are born for every 100 females), whereas a particularly aged population is linked to an increase in the percentage of women (women life expectancy is up to 5 years longer than male life expectancy). These indicators seem to be connected in particular in the Eastern Alps and only in a few cases in the Central-Western Alps. For example, in the North-Eastern Austrian Alps, in Carnia and in the Dolomites, there are high rates of women in combination with an older population (see also figure 3), while in Alto Adige/South Tyrol and in the central part of Tyrol low rates of women combined with moderately high birth rates can be observed. Finally, in the Italian Western Alps, specifically in the Ossola Valley and in the surroundings of Biella and in the Langhe, there are high rates of women combined with an aged population. No particular evidence emerges from the

		Women (per 100 residents)	Foreign resident population (per 1,000 residents)	Elderly population (per 100 residents)	Ageing index	Working-age total resident population (per 100 residents)
Austria	Alps	51.1	96.8	18.7	129.2	66.8
	National	51.2	118.8	18.1	125.3	67.5
France	Alps	50.9	62.3	16.9	92.2	64.7
	National	51.6	62.4	17.6	96.4	63.9
Germany	Alps	51.1	72.5	21.4	155.1	64.7
	National	50.8	93.8	20.7	158.4	66.2
Italy	Alps	51.1	78.7	21.8	154.2	64.1
	National	51.6	73.5	21.2	151.4	64.8
Liechtenstein	Alps/national	50.5	335.0	14.9	96.0	69.6
Monaco	Alps/national	55.8	54.0	24.4	-	57.9
Slovenia	Alps	50.4	41.3	17.6	120.8	67.8
	National	50.5	44.4	17.1	118.1	68.4
Switzerland	Alps	50.5	203.6	17.1	128.3	67.2
	National	50.6	232.6	17.4	116.5	67.7
Alps		51.0	94.7	19.5	129.8	65.5

Table 4: Main indicators of population structure, in the Alpine area and in the national territory of the eight Alpine countries. Data on 1 January, 2013, except for France (census data, year 2010) and Germany (data on foreign resident population refer to 2010). Source: Eurostat database, for Monaco: Monaco Statistics (2013).

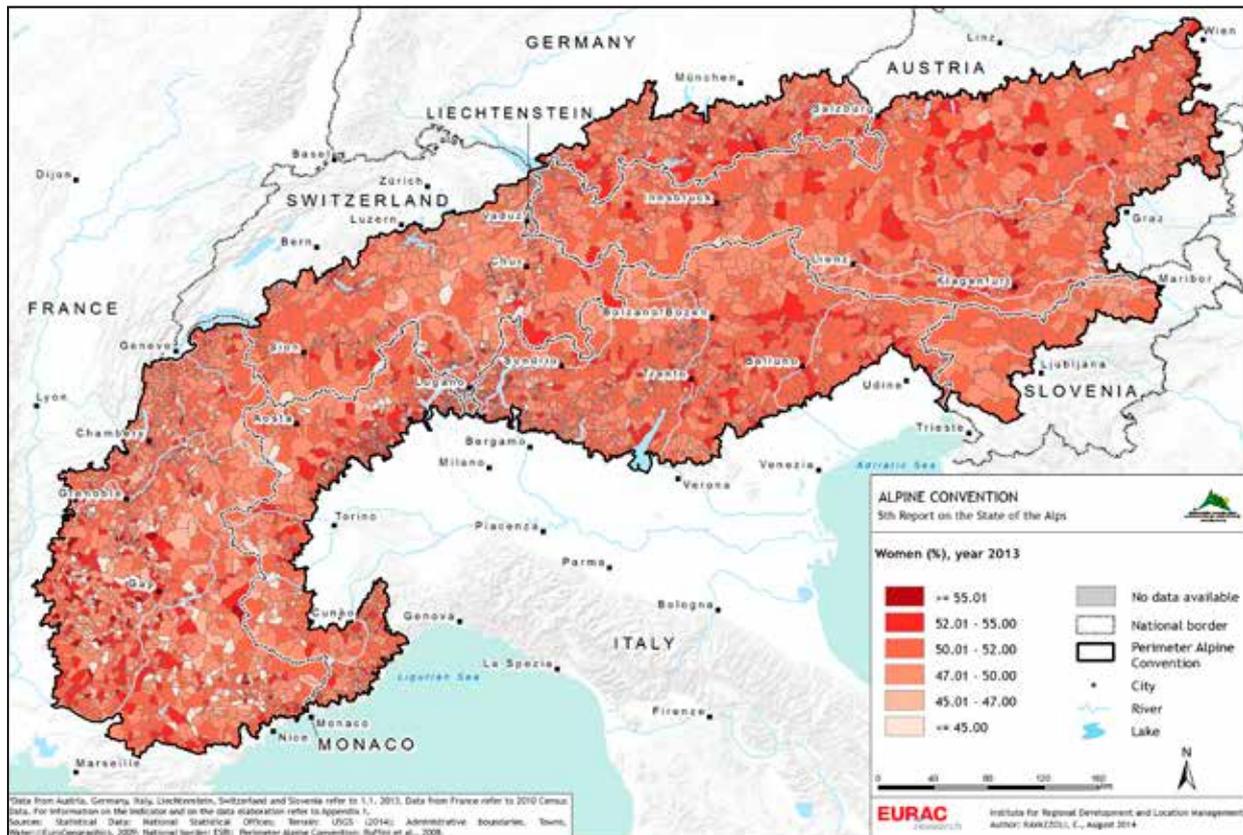


Figure 3: Women (per 100 residents).

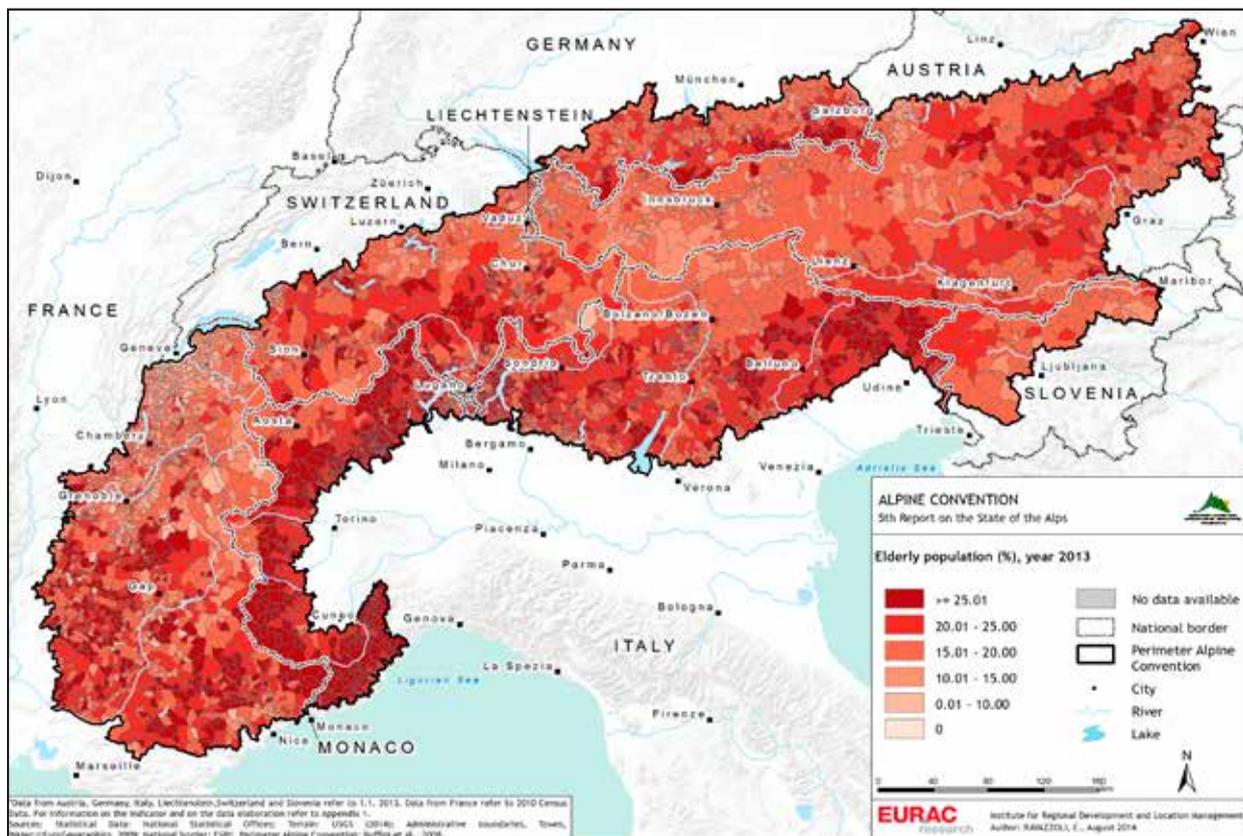


Figure 4: Elderly population (per 100 residents).

Western Alps, where the small size of several municipalities contributes to increase the general variability of the resulting indicators.

### 2.2.2 DISTRIBUTION BY AGE

Resident population ageing is not an exclusively Alpine trend, but it also affects Alpine municipalities, although not homogeneously. This is represented in figure 4, which shows the percentage of the population above 65 years with respect to the total population.

In the Alpine area, the highest elderly population rate is recorded in Monaco and in the Italian Alps, above all in the Eastern area, with an incidence of the elderly population of 24.4% and 21.8% respectively, compared, for example, to 14.9% in Liechtenstein and 16.9% in the French Alps. The comparison between Alpine averages and national averages shows a fragmented picture: while the Alpine population in Austria, Germany, Italy and Slovenia tends to be slightly older than the national population, in France and Switzerland the opposite occurs.

Another indicator, closely connected to the percentage of the elderly population, but actually different and providing additional important information about population ageing, is the total resident population ageing index, i.e. the ratio between inhabitants older than 64 and younger than 15. This indicator gives an idea of the “substitution rate” in the population segmentation by age. In the Alps, the highest ageing population index is in the German Alps (155.1) while the lowest is in the French Alps (92.2) (table 4). Except for France and Germany, figures in Alpine countries are always higher than the national averages (e. g., the Swiss Alpine index is 128.3, while the national average is 116.5).

The percentage of the working-age population, i.e. the population aged 15 to 64, is another important indicator, closely related to the labour market. Figure 5 shows the percentage of the working-age total resident population, calculated for the last available year (generally, 1 January 2013)<sup>3</sup>. The working-age total resident population rate in the Alpine area is 65.5%, with the minimum rate in Italy (64.1%) and the maximum rate in Liechtenstein (69.6%). National averages are higher than Alpine rates nearly in all these countries.

### 2.2.3 FOREIGN RESIDENT POPULATION

Migration is an important factor for the development of a region, especially for those areas which are subject to depopulation or population ageing, as is the case of the Alps. In these cases, the autochthonous population may not be sufficient to fulfil labour demand or to counter lower birth rates or population ageing. This is why foreign population resident in a territory is an important indicator to understand demographic changes and their drivers and to analyse the labour market<sup>4</sup> (figure 6). In the Alpine area there is an average of 94.7 foreign residents per 1,000 residents, but the situation is very diverse according to the country taken into consideration: the lowest rate is in the Slovenian Alpine area with 41.3 foreign residents per 1,000 (followed by the French Alpine area with 62.3 foreign residents per 1,000), while the highest one is in Liechtenstein (335.0) and Switzerland (203.6). If we compare national averages with figures in the Alpine areas, we see that in Austria and Germany the national figure is much higher than the Alpine figure, while in Italy the opposite occurs, and Alpine areas have a higher concentration of foreign population than non-Alpine areas (table 4). In Italy, the national average is probably lower due to the fact that the foreign resident population is scarcely concentrated in the Southern part of the country.

3. For some countries the indicator may refer to a different year due to the unavailability of data (see notes on the map).

4. The percentage of foreign population is a static index, which does not account for migratory flows, but rather depicts their impacts. A detailed analysis of migration dynamics in the Alps is included in the theme analysis “Study on immigration and emigration from the Alps with respect to the “new highlanders”.

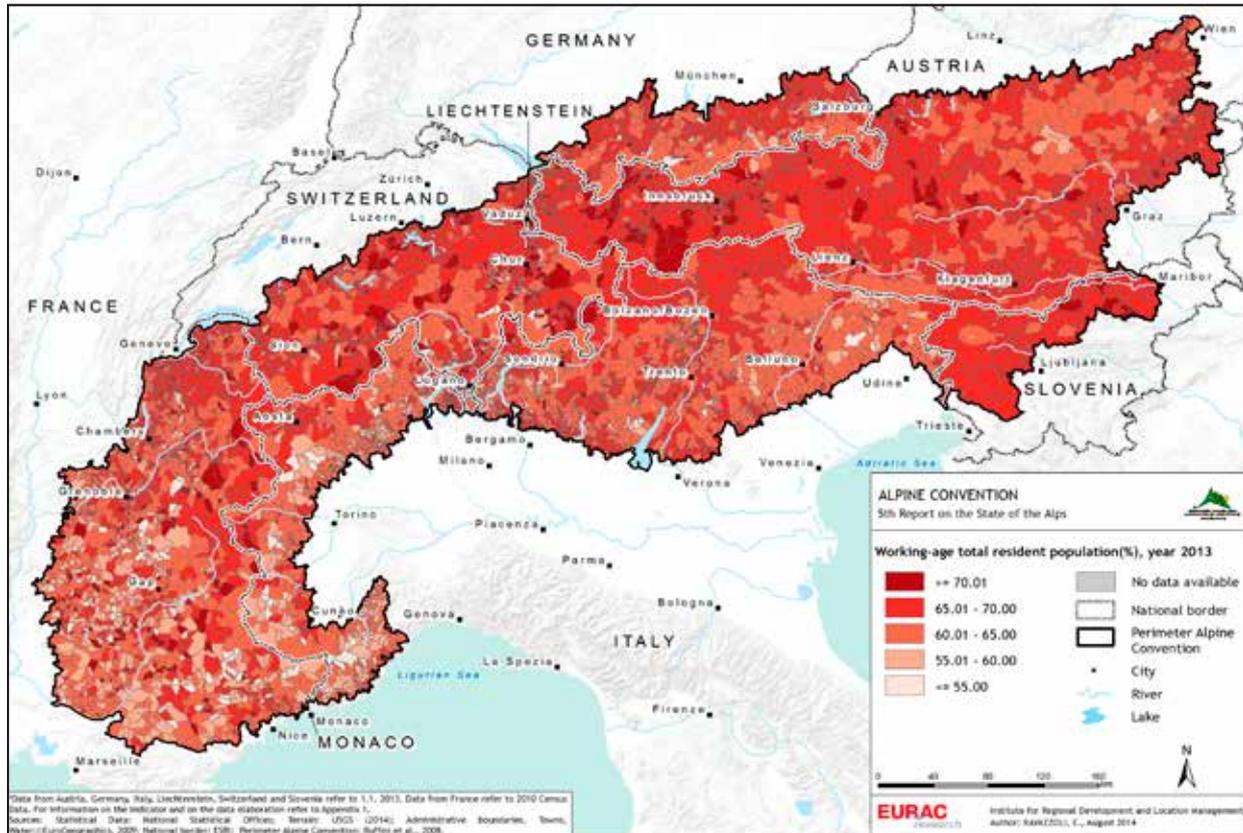


Figure 5: Working-age total resident population (per 100 residents).

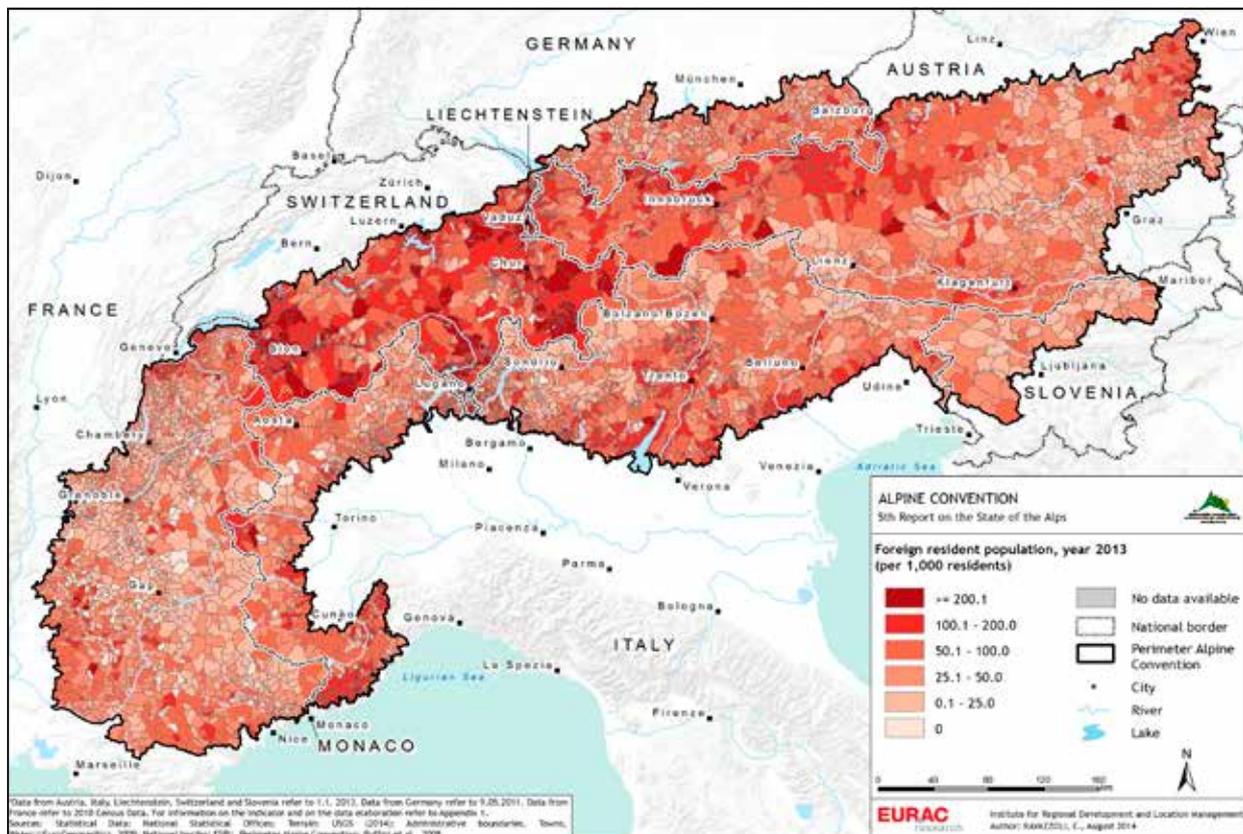


Figure 6: Foreign resident population (per 1,000 residents).

## National contributions

### AUSTRIA

With respect to the percentage of women, no significant spatial differences are to be seen in Austria. In the Alpine area, at 1/1/2013 the percentage of women per 100 residents was on average only slightly lower (51.1%) than outside the Alps (51.3%).

Regarding foreign resident population (citizens of a different country who live in Austria), clear geographical differences can be observed. While in the non-Alpine area 13.3% of the population were foreign citizens at the beginning of 2013, their share was clearly lower in the Alpine zone (9.7%) – compared to 11.9% in Austria as a whole. In and outside the Alps, the percentage of foreign residents is higher among men than among women. On a regional level, foreign citizens were mainly concentrated in the western part of the Austrian Alps, particularly in Vorarlberg, the northern part of the Tyrol and Salzburg, while their share was particularly low in East Tyrol and in swaths of northern Styria.

		Alpine area	Non-alpine area	Austria total
Women (per 100 residents)		51.1	51.3	51.2
Foreign resident population (per 1,000)	male	99.2	137.5	122.5
	female	94.5	128.8	115.4
	total	96.8	133.1	118.8
Elderly population (65+) (per 100 residents)		18.7	17.7	18.1
Total resident population ageing index		129.2	122.7	125.3
Working-age total resident population (per 100 residents)		66.8	68.0	67.5

Table 5: Population structure indicators for Austria, 1/1/2013.

The share of the elderly population (aged 65 years or more) within the total population on 1/1/2013 reached 18.1% in Austria. The equivalent value of the Alpine area is a bit higher (18.7%) when compared to the area outside the Alpine Convention perimeter (17.6%). Regionally differentiated, at municipal level especially the border area of Lower Austria and Styria (along the Lower Austrian-Styrian Limestone Alps) and large parts of Carinthia seem to be “older” than most of the other parts of Austria’s Alpine territory.

In Austria, the total resident population ageing index, which relates the number of the elderly population not in employable age any more (65 years or above) to the young population not yet in working age (0-14 years), was higher within the Alpine area (129.2) than outside (122.7) at the beginning of 2013. This means that in the Alps the proportion of the elderly in relation to young people is higher than in the non-Alpine area. Within the Alpine territory of Austria this index too is considerably higher along the north and north-east border of Styria as well as in the south of Austria (Carinthia) than in the western federal territories of Salzburg, Tyrol and Vorarlberg.

On the contrary, the percentage of the working-age total resident population (aged 15-64 years) on 1/1/2013 showed high values in the western part of Austria’s Alpine area, whereas in many municipalities along the border area of Styria and Lower Austria the share is clearly lower. Generally, in the perimeter of the Alpine Convention, the value of the working-age population per 100 residents is slightly lower (66.8%) than in the non-Alpine area of Austria (68.0%).

### FRANCE

In the French Alps, the population is very close to the national average in terms of youth: 18% of the population is under 15 and 17% over 64 (15% in 1999). The percentage of women, the total resident population ageing index, the working-age total resident population index are equal to the national averages. These similarities between the Alpine and national rates may seem unexpected, but this is due to the mainly urban and suburban population of the northern part of the Alpine massif and of its southern brim, which are similar to other urban and suburban population of France.

	Alps		France	
	2010	%	2010	%
Total population	2,683,801		62,765,238	
0-14 years	493,341	18.4	11,507,484	18.3
0-19 years	657,322	24.5	15,367,287	24.5
20-64 years	1,571,705	58.6	36,732,464	58.5
>65 years	454,774	16.9	10,665,487	17.0
Total resident population ageing index (per 100 residents)	0.92		0.92	
Working age resident population (per 100 residents)	1,735,686	64.7	40,592,264	64.7

Table 6: Population structure indicators for France, 2010.

	Alps 2010	
	2,838,085	%
Total population	2,838,085	
French	2,667,884	94.0
Foreign population	170,201	6.0
Italy	21,154	0.7
Algeria	19,632	0.7
Portugal	17,649	0.6
Switzerland	14,074	0.5
Morocco	12,499	0.4
Turkey	11,773	0.4

Table 7: Total and foreign population for the French Alps, 2010.

The situation is quite different taking in consideration the population structure of the central part of the territory. For example, the elderly (over 64) account for 20% of the population of the department des Hautes-Alpes, 3 points above the national and Alpine level. The departure of young people who leave these part of the Alps to go to work or study in the large cities in the perimeter (Grenoble, Annecy, Chambéry...) or elsewhere means that the percentage of elderly people is going to continue to grow in this part of the territory, leading to specific and urgent needs of specific equipment, housing facilities, transports services, etc. 6% of the population is foreign. The five most represented nationalities are Italians, Algerians, Portuguese, Swiss and Moroccan. A large number of Swiss people living in the northern part of the Alps work in Geneva, commuting every day.

## GERMANY

The proportion of women on the total resident population in the German Alps does not differ significantly from the Alpine average. Figures do not differ considerably also in cities, since the percentage of women per 100 inhabitants in more than half of all Alpine German municipalities ranges between 49% and 51%. The lowest rate is in the municipality of Ettal in Upper Bavaria (45.0%) while the highest is in the municipality of Rottach-Egern, also in Upper Bavaria (55.6%).

As far as population age is concerned, Germany, like most European and Alpine countries, has experienced a population ageing process in the past decades. The causes of this change are, among others, the longer life expectancy and the enhanced quality of life of elderly people also due to their longer presence at work and to the subsequent economic benefits (Bayerisches Ministerium für Arbeit und Sozialordnung, Familie und Frauen, 2011).

The percentage of the total elderly population in the German Alpine area amounted to 21.4% in 2012 and was (with Monaco and Italy) among the highest in the Alpine countries. At municipal level, the majority (55.8%) of the municipalities have a rate of elderly people per 100 residents higher than the average Alpine level (19.5 persons above 65 years per 100 inhabitants).

In overall terms, the German Alps have a rate of 72.5 foreign residents per 1,000 inhabitants. This percentage is clearly lower than the overall national German figure (93.8 foreign residents per 1,000 inhabitants). The overall rate for Bavaria is 82.1. Compared to the rest of Bavaria, the presence of foreign residents in Alpine areas appears to be lower. This is also shown by the analysis of the distribution of the foreign residents in the districts. Data show that, while the urban area of Rosenheim has a higher rate of foreign residents per 1,000 inhabitants, the surrounding district has a significantly lower rate (60.3). The district of Ostallgäu has the lowest rate of foreign residents among all Alpine districts (50.8). Therefore, on

the whole, non-urban areas appear to have lower foreign resident population rates. Finally, at municipal level, it is worth noting that the majority of the German Alpine municipalities (61.8%) have a rate of foreign residents lower than 50 per 1,000 inhabitants or between 51 and 100 foreign residents per 1,000 inhabitants (30.5%).

## ITALY

The distribution of the Alpine population by gender does not differ significantly from the national average and is on the whole fairly balanced: women amount to 51.1% of the total Alpine population, and to 51.6% on the whole national territory. Variations are small also at NUTS 2 level, ranging from 51% in Trentino-Alto Adige and Liguria to 51.4% in Piedmont and Friuli-Venezia Giulia. The NUTS 3 highest value is shown in Biella (52.5%); Verona and Imperia are the provinces with the lowest values (50.1%). Greater variability is observed at the LAU 2 level: in the municipality of Balmuccia, Vercelli, and in the municipality of Introzzo, Como, there are more than six women per ten residents. Figures higher than 55% were also recorded in the municipalities of Ingria, Turin, Montagne, Trento, Sala Comacina, Como, Tremenico, Lecco, Palazzo Canavese, Turin, Quassolo, Turin.

The Alpine region is characterised by a decline in fertility rate, a depopulation in the age group of the active population and a consequent population ageing. Ageing is a general trend in European countries, and is the result of low fertility rates and longer life expectancy. However, as the population structure depends not only on fertility and mortality, but also on immigration and emigration, the demographic effects are clearly visible in the Alpine area with an increase in population ageing. The national percentage of elderly people is 21.2%, slightly lower than that of the Alpine area (21.8%). Women living in the Alps are older than men: the female indicator is 24.5%, while males are at 19.0%. The areas in the Alps with the higher share of elderly people are those in the west, in particular in the provinces of the Liguria region and in the province of Cuneo; other "old" areas are located in the east, in the province of Trieste and in the area between Tarvisio and Udine. A different situation can be found in Alto Adige/Südtirol, which has the lowest percentage of the total elderly population, and the highest fertility rate. Another "young" area is located around Aosta. The youngest municipality is in the province of Bergamo (Brembate), the oldest in the province of Udine (Drenchia), where half of the residents is more than 65 years old.

	Italian alpine area	Italy	Italian alpine area males	Italy males	Italian alpine area females	Italy females
Percentage of total elderly population	21.8	21.2	19.0	18.6	24.5	23.6

Table 8: Percentage of the elderly population in the Italian Alps, 1/1/2013.

The ageing index is a composite demographic ratio defined as the ratio between the old population (over 65) and the young population (under 15). It is one of the several demographic indicators that can be used to measure the rate at which a population ages. This indicator takes into the account the "population turnover" and emphasises the situations where lower fertility rates are found as well as the effects of age-selective exodus of young adults of reproductive age. In Italy, the demographic processes that have been going on for several years and that influence the ageing index are caused by an increase in old-age population, a decline of the young population, a rise in life expectancy and a limited fertility rate, which is well under the level of generational turnover (2.1 children per woman). These factors mean that the total resident population ageing index has increased, reaching the value of 151.4% at 1 January 2013. In the Alpine area, this index is higher (154.2%) than the national average, probably due to the age-selective exodus of young people. Depopulation of mountain area leads to low fertility rate and, as a consequence, to population ageing. There is a big difference between male and female population in the Alpine area: the ageing index for males is 128.0%, for females it is 181.8%.

The municipalities with high population ageing are located in the western regions and in Liguria (which is the most "ageing region" in Italy). Savona, Genova and La Spezia, three of the four provinces of Liguria, are among those with the highest ageing index in Italy. A similar situation can be found in the higher parts of Orobie (Bergamo Alps) and in middle

Valtellina. Younger municipalities can be found in Trentino Alto-Adige, probably due to the high fertility, in particular in the Autonomous province of Bolzano/Bozen. In the east, the province of Trieste is the one with the highest ageing index. Ribordone, Turin, has the highest ageing index in the Alps, Livigno, Sondrio, the lowest.

	Italian alpine area	Italy	Italian alpine area males	Italy males	Italian alpine area females	Italy females
Total resident population ageing index	154.2	151.4	128.0	125.4	181.8	178.9

Table 9: Total resident population ageing index in the Italian Alps, 1/1/2013.

At national level, the percentage of working-age total resident population is 64.8%, in the Alpine area it is 64.1%. There are no differences between Italian and Alpine data, percentages are quite the same for males, females and the total. In recent decades there has been a constant decrease in the share of people aged 15-64, due especially to a massive process of mountain exodus (depopulation) in order to pursue better job opportunities or studies.

	Italian alpine area	Italy	Italian alpine area males	Italy males	Italian alpine area females	Italy females
Percentage of working-age total resident population	64.1	64.8	66.8	66.5	62.5	63.3

Table 10: percentage of working-age total resident population in the Italian Alps, 1/1/2013.

The exodus of young adults in the age of procreation will lead also in the future to an increase in the ageing process of the population structure of the Italian Alps.

Working-age population concentrates in the areas with better job opportunities. Therefore, the highest concentration of this age group is in the valleys and around the areas of Tarvisio, Mont Blanc and Frejus tunnels and the areas around Trento and Bolzano/Bozen.

The foreign resident population consists of non-Italian citizens registered in the municipal registers of the resident population. The percentage of the total foreign population in the Italian Alpine area as a whole on 1 January 2013 amounted to 78.7 per 1,000, a figure higher than the national average (73.5 per 1,000).

The foreign population in Italy is heterogeneous, partly because of historical reasons. The most important country of origin is Rumania. Among non-EU populations Moroccans, Albanians, Ukrainians, Macedonians, Chinese, Moldovans, Pakistanis and Senegalese prevail. The breakdown in terms of countries of citizenship of foreign residents in the Alpine area differs somewhat from the national pattern. In the Italian Alps as in some other areas, especially in northern and central Italy, the attractiveness due to job opportunities and therefore better economic and living conditions (and also family networks) determined inflows of foreign nationals from abroad or from other parts of the country, helping to establish the complex mosaic of foreign presence in the area. Positive net migration from foreign countries was recorded in the last decade almost everywhere in the Alpine area, in particular in the eastern part of Liguria, in the valleys and along the main roads. Imperia is the province, where Alpine municipalities show, on the whole, the highest incidence of foreign population (over 130 foreigners per 1,000 inhabitants). Treviso (115), Brescia (100), Vicenza (93) and Trento (92) follow in this ranking. In the provinces of Udine (44 foreigners per 1,000 inhabitants) and Sondrio (46), the incidence of foreign population is significantly lower than the national average (79). More than 230 residents per 1,000 are foreign citizens in the following municipalities of the province of Imperia: Airole (with the maximum value of 274 per 1,000), Chiusavecchia (269), Vessalico (268), Pietrabruna (231). The incidence of foreign population is also high in the Autonomous province of Trento, in the municipality of Fortezza (239) in the Autonomous province of Bolzano/Bozen, in Campione d'Italia (238)

and Veleso (236) in province of Como, in Prigelato (238) in the province of Torino, and Odolo in the province of Brescia (233). Only in 31 of the 1,749 municipalities included in the Alpine arc (corresponding to 1.8%) on 1 January 2013 there were no resident foreign nationals.

With reference to the citizenship, concentrations of nationalities can be observed in specific areas. This is the case for example of the Chinese in Barge, Envie, Bibiana, Paesana and Bagnolo Piemonte in the province of Cuneo. Since the 1990s this area has recorded extensive and continuous arrivals of immigrants, particularly from China, mainly employed in the manufacturing process of the stone (in particular marble tombstones). This is still the case of the Macedonians in the Valley of Cembra, particularly in the towns of Faver and Valda, Trento, or in Salorno/Salurn, Bolzano/Bozen, often employed in processing porphyry, the main economic resource of the area.

Figure 7 displays the ranking of the top ten foreign nationalities (in descending order in terms of number of residents in all the Italian Alpine municipalities), identified on the basis of the data for the years 2004 and 2011, with the indication of the top nationality in each Italian Alpine municipality. If the citizenship is one of the first 10 nationalities identified as explained above, it is shown on the map with a specific color. The first citizenships that are not in the top ten are classified together in the residual class "other."

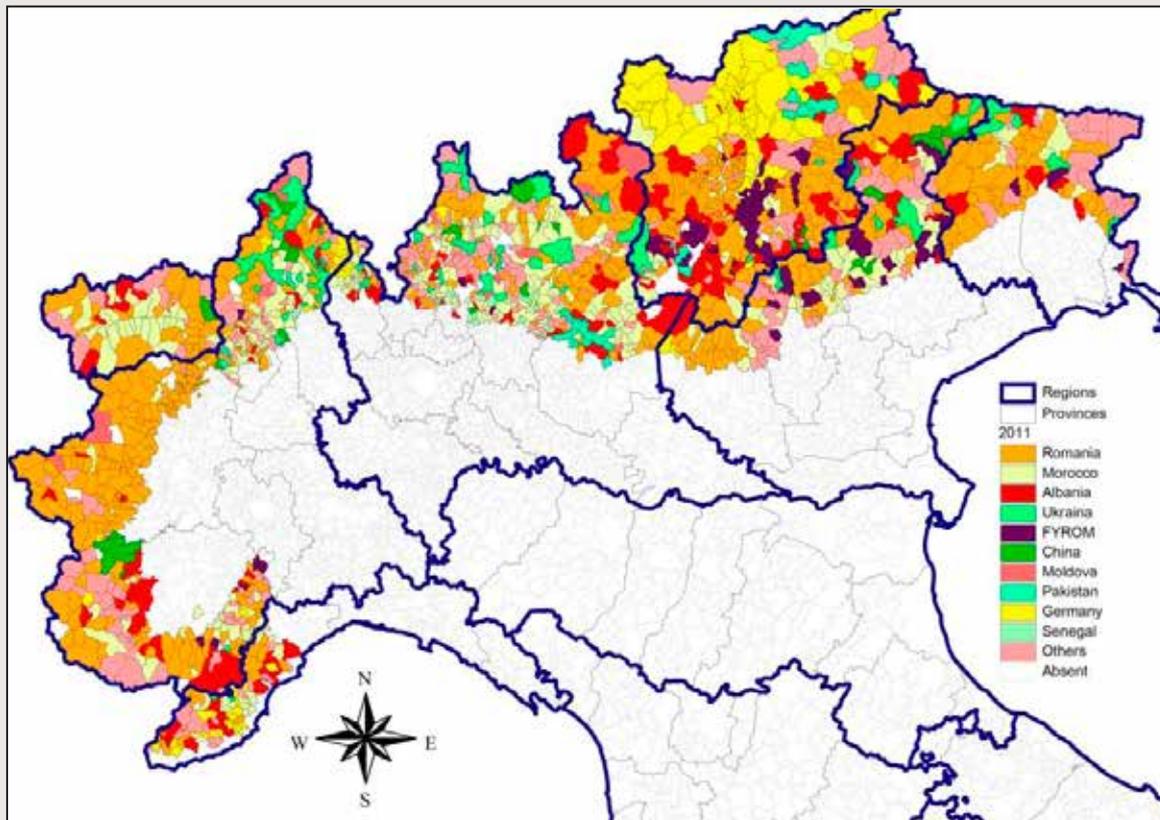


Figure 7: Italian Alpine municipalities by first foreign resident citizenship.

## SLOVENIA

Slovenia, like most European countries, is facing a population ageing process. Birth rates are too low and decreasing, longer life expectancy and lower mortality rate are changing the age structure of the population. On the one hand, the number of children (0–14 years) is decreasing, while on the other hand the percentage of the working-age population (15–64 years) and in particular the share of the elderly (more than 64 years) are increasing.

Such trends are not promising for the future (in 10 years and beyond), as they will lead to an increase in the proportion of the elderly and a reduction in the proportion of the working-age population.

In early 2013, more than 352,000 residents in Slovenia, i.e. 17.1% of the total resident population, were over 64 years; 20.2% of women and 13.9% of men (the proportion of men over 64 is therefore slightly smaller than the proportion of women over 64). Every third elderly person lived alone and was subject to poverty. Approx. 1,600 elderly people were employed (i.e. 0.2% of the active working population).

Five years earlier (in 2008), the percentage of the elderly in the total resident population was exactly 1% lower. Population projections for Slovenia (EUROPOP2010) predict a further significant increase in the number and proportion of the elderly in the total population. By 2060, the elderly will account for 31.6% of Slovenia's total resident population, which means that by then every third person will be over 64 years old.

In early 2013, the percentage of the elderly in the municipalities within the Alpine Convention area amounted to 17.6% and was not significantly different from the proportion of the elderly in the total resident population of Slovenia. The proportions of the elderly in different municipalities in the Alpine Convention area ranged from 13.7% (Zreče) to 21.9% (Kranjska Gora). It should be noted that quite a few municipalities with the highest proportions of the elderly among Slovenia's municipalities are located in the Alpine Convention area. This is particularly true of the markedly hilly municipalities located in the western part of the Alpine Convention area along the western border. In municipalities such as Kranjska Gora, Bovec and Bohinj, the proportion of the elderly was over 21%. At the same time, these municipalities also registered a high ageing index (183.0 in the municipality of Kranjska Gora, 176.1 in the municipality of Bovec and 151.0 in the municipality of Bohinj), indicating a highly unfavourable age structure of the population and alarming prospects for future demographic and general developments (the challenge of maintaining settlements and man-made environments, and stopping depopulation of areas and cultivation of land).

The proportion of the elderly population higher than 20% was registered in 9 out of 62 municipalities (i.e. 14.5%) in the Alpine Convention area. All these municipalities, with the exception of the municipality of Maribor (which registered 20.2 elderly people per 100 residents), are located entirely in the Alpine Convention area and, as already mentioned, mostly in the western part of the Alpine Convention area in Slovenia. In 2013, the registered number of the elderly in most municipalities of the Alpine Convention (72.6%) ranged from 15 to 20 per 100 residents. Only seven municipalities of the Alpine Convention registered a proportion of the elderly lower than 15 per 100 residents in 2013.

	Total elderly population (65+) (absolute values)	Elderly population (P65+) (per 100 residents)	Percentage of working age - total resident population (15-64)
Slovenia	352,145	17.1	68.4
Municipalities (LAU2) within the area of the AC – TOTAL:	116,786	17.6	67.8
entirely within the AC area	50,623	17.8	67.5
partly in the AC area	66,163	17.4	68.1

Table 11: Demographic structure indicators, Slovenia, 1/1/2013. Source: Statistical Office of the Republic of Slovenia.

In addition to the high proportion of the elderly, data on the ageing index also indicate an unfavourable age structure of the population both in Slovenia and in the Alpine Convention area. In early 2013, the ageing index in Slovenia amounted to 118.1, which means that there were 118 elderly people per 100 young people.

In 2013, the ageing index in the Alpine Convention area was not significantly different from the overall ageing index in Slovenia. The ageing index in the Alpine Convention area was somewhat higher in 2013 and amounted to 120.8. The municipalities that are located entirely in the Alpine Convention area registered a somewhat higher ageing index, i.e. 121.6 elderly people per 100 young people.

In the same period, the ageing index in 29 out of 62 municipalities (47.5%) in the Alpine Convention area was higher than the overall ageing index recorded in Slovenia, mostly in the municipalities located entirely in the Alpine Convention area. In 2013, the highest ageing indexes were recorded in the municipalities of Kranjska Gora (183.0), Bovec (176.1)

and Maribor (176.1), which are characterised by unfavourable demographic structure and trends. The lowest ageing indexes were recorded in the municipalities of Gorenja vas-Poljane (67.5), Logatec (76.8) and Cerklje na Gorenjskem (82.7).

	Total resident population ageing index
Slovenia	118.1
Municipalities (LAU2) within the area of the AC – TOTAL:	120.8
entirely within the AC area	121.6
partly in the AC area	120.3

Table 12: Total resident population ageing index, Slovenia, 2013.  
Source: Statistical Office of the Republic of Slovenia.

The ageing of the population also puts a greater burden on the working-age population (people aged 15 to 64 years). Statistical analyses show that the share of the working-age population in Slovenia slowly began to decrease after decades of continuous growth since 2003 when it stood at 70.4%. In 2013, it fell by 2 percentage points to 68.4. The decline in the working-age population in Slovenia is the result of the ageing of the population and a declining number of births. Even though immigrants aged 15–64 represent the highest proportion

of immigrants in Slovenia, this cannot stop the decline in the share of the working-age population in Slovenia. The share of the working-age population in the Alpine Convention area is lower by 0.6 percentage points, amounting to 67.8. 32.0% of the entire working-age population of Slovenia live in the Alpine Convention area.

The share of the working-age population in municipalities in the Alpine Convention area ranges from 71.1% (in the municipality of Vuzenica) to 65.8% (in the municipality of Vipava). In 53 out of 62 municipalities (85.5%) a decline in the working-age population was observed in the last decade (2003–2013). The biggest decline (4.6%) was registered in the municipality of Kranjska Gora, followed by the municipalities of Radlje ob Dravi and Dravograd at 3.9%, the municipality of Ruše at 3.8%, and the municipality of Muta at 3.1%. These municipalities also showed the biggest increase in the proportion of elderly people (65+) in the last decade (2003–2013).

The number of the working-age population will eventually decrease due to low birth rates.

	Working-age total resident population (absolute values)	Working-age total resident population (percent residents)
Slovenia	1,408,581	68.4
Municipalities (LAU2) within the area of the AC – TOTAL:	450,309	67.8
entirely within the AC area	191,815	67.5
partly in the AC area	258,494	68.1

Table 13: Working-age total resident population, Slovenia, 1/1/2013. Source: Statistical Office of the Republic of Slovenia.

In terms of foreigners, Slovenia belongs to the group of EU Member States with the lowest ratio of foreigners. On 1 January 2013, 91,385 foreigners accounted for 4.4% of the Slovenian population, of which 62,121 were men and 29,264 were women. Citizens of countries from former Yugoslavia accounted for the highest share of foreign citizens (86.3%).

As of 1 January 2013, there were 27,622 foreigners, i.e. 41.6 foreigners per 1,000 residents, living in the municipalities of the Alpine Convention. This represents 30.2% of all foreigners in Slovenia.

But even here there were differences between those municipalities that are located entirely in the Alpine Convention area and those that are only partially located within it. Municipalities that are located entirely in the Alpine Convention area had 29.6 foreigners per 1,000 residents (i.e. 3%), while municipalities that are only partially located in the Alpine Convention area had 50.6 foreigners per 1,000 residents (i.e. 5.1% of all residents). Most foreigners lived in municipalities with larger urban centres or in industrial cities: 68 foreigners per 1,000 residents in Postojna, 64.7 per 1,000 residents in Jesenice, 62.2 per 1,000 residents in Kranj, Nova Gorica and Šoštanj, and 57.9 per 1,000 residents in Maribor. Small numbers of foreigners, i.e. less than 10 foreigners per 1,000 residents, lived in municipalities in the eastern part of the

Alpine Convention area, namely the municipalities of Lovrenc na Pohorju, Muta, Oplotnica, Ribnica na Pohorju, Mislinja, Podvelka and Solčava (which had the smallest figure of 1.9 foreigners per 1,000 residents). These are mainly rural municipalities with no big cities. Because of their age structure, foreign nationals are lowering the age of the Slovenian population, with the average age of the entire population of Slovenia being over 42 years and the average age of foreign nationals being 33.5 years in the last five years.

## SWITZERLAND

The following section focuses on the Swiss population structure based on the analysis of three indicators collected at municipal level: the number of women out of 100 residents, the number of elderly people out of 100 residents and the number of foreign residents out of 1,000 residents. The analysis is mainly based on municipal figures; nevertheless, due to the heterogeneity of these data, which, in some cases, do not lead to identifying clear patterns, the analysis also aggregated municipal figures at cantonal (NUTS 3) level.

The proportion of women on the total resident population in the area of the Alpine Convention in Switzerland does not differ significantly from the national Swiss average (50.5% in 2013). Also at municipality level, the values do not differ considerably from the Swiss average, since two thirds of the Swiss Alpine municipalities present percentages of women on the total resident population ranging from 48 to 52%.

As far as population age is concerned, Switzerland, like most European and Alpine countries, is facing a change in the age structure of the population, with an evidence of population ageing. The possible causes of this change are, among others, a lower birth rate, combined with a longer life expectancy and a lower mortality rate (FSO, 2014). The percentage of the total elderly population in Switzerland amounted to 17.4% of the population in 2012 and is increasing (FSO, 2014). This development is clear in the Alpine Swiss area, which has an average rate of elderly people higher than the average Swiss one (18.4%); moreover, more than half of the Alpine Swiss municipalities (67%) have a share of elderly people that is even higher than this average, and one third of these municipalities has a rate of elderly people higher than 22%.

Regarding the foreign resident population, Switzerland has an average rate of 232.6 foreign residents on 1,000 total residents. The majority of these residents come from EU-27 countries and a high number of foreign residents come from other partly Alpine countries such as Italy (which contributes to 15.6% of the overall Swiss foreign resident population), Germany (15.2%) and France (5.6%). All in all, foreign residents from other Alpine countries constitute up to nearly 40% of the overall foreign population resident in Switzerland. In comparison with general Swiss values, a lower average number of foreign residents can be observed in the Swiss municipalities entirely located in the perimeter of the Alpine Convention (203.6); nevertheless, in general, the municipal foreign resident rates are generally higher than the figures shown by the municipalities in other Alpine countries.

The foreign resident population is not evenly distributed across the different Alpine cantons: for example, the Cantons of Vaud, Ticino, St. Gallen and Glarus have a higher rate of foreign resident population in comparison with the Alpine average. In the case of Vaud and Ticino (with a rate of 267.3 and 225.0 foreign residents per 1,000 inhabitants), the rate of foreign residents is also higher than the average Swiss rate. These cantons seem to attract foreign residents especially from the closest Alpine countries: for example, in Ticino, the foreign resident population from Italy constitutes 57% of the overall foreign population, while in the Canton of St. Gallen, 20% of the resident population is from Germany.

On the other hand, the Alpine cantons having the lowest rate of foreign residents are Appenzell-Innerrhoden and Uri, which, with rates of 100.5 and 105.2 respectively, are far below the Swiss and Alpine average.

The comparison of the data at national, cantonal and municipal level shows a complex picture: on the one hand, the Alpine Swiss municipalities and cantons are generally less affected by foreign resident population than the overall Swiss territory, but, on the other hand, this phenomenon is also unequal among the Alpine cantons. Aggregate data show that some specific cantons (Vaud, Ticino, Valais, St. Gallen and Glarus) show a higher incidence of the resident foreign population than the Alpine Swiss average. In conclusion, the incidence of foreign residents on the total population does not seem to be associated with the fact that a canton is fully or only partially included in the Alpine area, but seems rather related to local characteristics, such as the proximity to other countries and the specific situation of the cantonal and national labour market.

## 2.3 POPULATION GROWTH

Demographic evolution is influenced by trends in fertility, mortality and migration. These changes can affect, but can also be affected by, economic and social changes in society. The relationship between demographic development and the economic and social changes in the Alps is complex, since, on the one hand, social and economic changes are affected by the demographic development and, on the other hand, the demographic development is able to affect the economic and social dimension. This is the reason why demographic changes should be considered in a wider context, including also economic and social indicators and taking into account the changes in the population structure that are occurring and have occurred in the Alps.

In general, demographic trends are not equally spread across the Alpine region and it is therefore not possible to highlight a single trend regarding Alpine population loss, stagnation or repopulation. Moreover, areas affected by population growth and population decrease are often located close to each other, suggesting that specific conditions linked to the different administrative units considered may also play a relevant role in influencing demographic dynamics.

In general, when analysing how population growth and decrease have been concentrated in the Alps in the decade 2001 – 2011<sup>5</sup>, data show the highest population growth trends (Figure 8) in the Austrian Bundesländer of Tyrol and Salzburg, in the French departments of Haute-Savoie, Savoie (mainly around the cities of Chambéry and Grenoble) and Var, in the Swiss cantons of Valais, Ticino and in Central Switzerland (Nidwalden, Obwalden, Zug, Lucerne, Schwyz). In these prospering regions of the Alps, the urbanisation of the urban valley towns is evident. Due to the influence of the growing tourism sector, which offers a steady source of income for the local inhabitants, population gains can be noticed also in remote municipalities that are not easily accessible, particularly in the tourist sites in the Austrian, French, Swiss and Italian Alps.

On the other hand, population loss or stagnation can be observed in the Central-Eastern Austrian Alps (particularly in Eastern Styria, in the southern parts of Lower Austria and in the peripheral areas of Carinthia), in the Swiss Canton of Uri and in several areas of the Italian Alps (western side from Liguria to Val d'Ossola, inner Lombardy, provinces of Pordenone and Udine). Furthermore, minor population losses are observed in the upper areas of the Slovenian Alpine region. All in all,

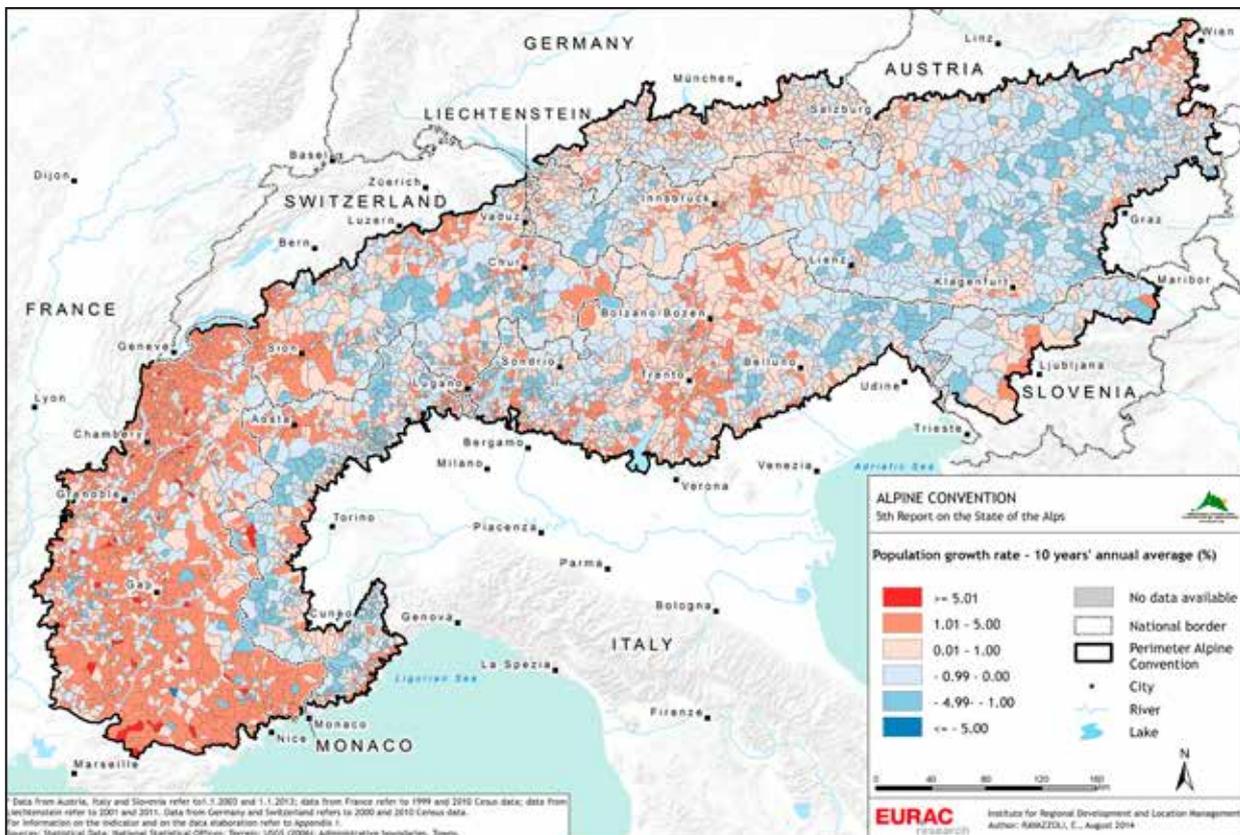


Figure 8: Population growth rate (per 100 residents).

5. The main indicator analysed in this report in this respect is the population growth rate whose description is available in annex A.

agglomeration processes area shown in the Alps, where the population tends to coagulate in the proximity of the urban areas and along the main transportation access routes to these urban areas. Nevertheless, different agglomeration levels can be observed, both within a single country and across countries. In France, Switzerland and Germany, this process seems generally slower, with a lower population decrease in remote areas in comparison with Italy and Austria. In these two countries, the situation varies greatly according to the territory considered and is not homogeneous, with a more severe population loss in more remote areas and a stable or increasing population along the main transportation roads and urban areas. Agglomeration processes seem to have gone at a steadier pace in the last 10

years in Italy and Austria, with respect to France, Germany and Switzerland.

Different assumptions can be made to explain these changes; nevertheless, common denominators can be identified. Taking the Italian situation as an example, it is possible to see that the areas where specific policies have been devised, for example in regard to maintaining mountain agriculture, have had a lower loss of population. Fiscal autonomy is another important component of the picture. Another driving factor could be tourism, since it can be noticed that areas that have strong tourism structures are also the ones that show lower population losses.

## National contributions

### AUSTRIA

Within Austria's Alpine territory, the population growth rate between the beginning of 2003 and 2013 (10 years' annual average) showed considerable regional differences. Among the Alpine regions in Austria two distinct patterns can be distinguished.

First, we have to mention areas with usually high population growth. These are mainly located in the western federal territories of Austria (a majority of the municipalities in the northern part of Tyrol, the west and north of Vorarlberg and several municipalities of Salzburg) as well as, for example, in the north-eastern foothills of the Alps (the suburban region west and south-west of Vienna in the Wienerwald) and in the Carinthian basin in the south of Austria (around Klagenfurt). Secondly, we have to consider areas with population loss for the most part. This concerns large parts of the Alpine regions of Upper and Lower Austria, Styria, Carinthia and East Tyrol as well as, for example, the border area between the northern part of Tyrol and Vorarlberg.

### FRANCE

Over the past 10 years, the population in the French Alps has increased by almost 300,000 inhabitants. Its demographic growth rate (over 1.0% annually) is higher than the national rate (0.7%). This is partly due to natural growth (0.4%), but two third of the growth are caused by a higher number of arrivals with respect to departures of people (0.7%). This in turn is explained by the economical attractiveness of the territory: the number of jobs offered grew by 17.0% over the same period (+13.0% in France), especially in the service sector.

### GERMANY

In order to analyse population growth in the 2000–2010 decade, the main indicators considered were the overall population growth rate, i.e. the percentage change between 2000 and 2010, and the average yearly growth rate, i.e. the average population increase or loss for each of the years between 2000 and 2010.

The German area included in Alpine Convention recorded, in the 2000–2010 decade, an overall 3.0% population increase. This growth rate is in line with the growth rate for the whole of Bavaria, which, in the same decade, recorded a 2.5% population increase.

The average annual growth population rates for the above-mentioned period are positive in almost all the districts, except for the district of Garmisch–Partenkirchen (-0.03% annual average population loss rate) and in the urban district of Kaufbeuren (-0.1% annual average population loss rate). Nevertheless, in these two districts, the 2000–2010 decade shows signs of population stagnation rather than of a substantial population loss: the population growth rate for the entire decade was in fact -0.3% for Garmisch-Partenkirchen and -0.1% for Kaufbeuren.

At municipal level, the population trend in the German Alps in the years 2001–2010 can be considered either stable or increasing: more than one third of the municipalities (76%) recorded positive population growth from 2001 to 2010, while more than half of them (58%) recorded a population growth higher than 2.5%, with annual average growth rates ranging from -1.2% in Reit im Winkl (district of Traunstein) to 2.6% in the municipality of Balderschwang (Oberallgäu).

## ITALY

In most Italian alpine municipalities, the population remained stable between 2003 and 2013. Municipalities that showed an increase due to natural and migratory reasons are located along the highway (A22), while those that increase because of migration are mainly located in the province of Torino. The highest population growth rates are along the highway (A22), in municipalities near the sea (in Liguria), in the centre of the Aosta Valley region and in the area of Bardonecchia. In Trentino-Alto Adige, the positive effect (in demographic terms) of migration is combined with a positive natural trend (mainly due to an increase in newborns). Lower population growth rates are in the Italian eastern Alps, in the area among Tarvisio, Tolmezzo and Gemona (where there was an earthquake in 1976).

The average annual rate of increase of the Alpine population between 2003 and 2013 was equal to 0.49%. In ten years, therefore, the population of Alpine municipalities grew, on average, each year one unit every two hundred. It is not a high increase, still it is higher than the national average during the same period (+0.45%) and higher than the increase recorded in the other Italian non-Alpine municipalities (+0.44%). Of course, the situation is quite diverse across the Alps, where depopulation is clearly a problem. 42.1% of the municipalities of the Italian Alpine area show growth rates of the resident population between 2003 and 2013 equal to zero (about ten municipalities) or negative. The municipalities with the highest negative growth rate are Sabbia in the province of Vicenza, Cintano, Ingria and Moncenisio in the province of Torino, Drenchia, Livosullo and Savogna (in the province of Udine), Falmenta (in the province of Verbano-Cusio-Ossola) where, on average, there has been a reduction of about 4 units out of every hundred inhabitants in each year of the period considered. On the opposite side, the population grew by more than 5% per year in the municipalities of Givoletto

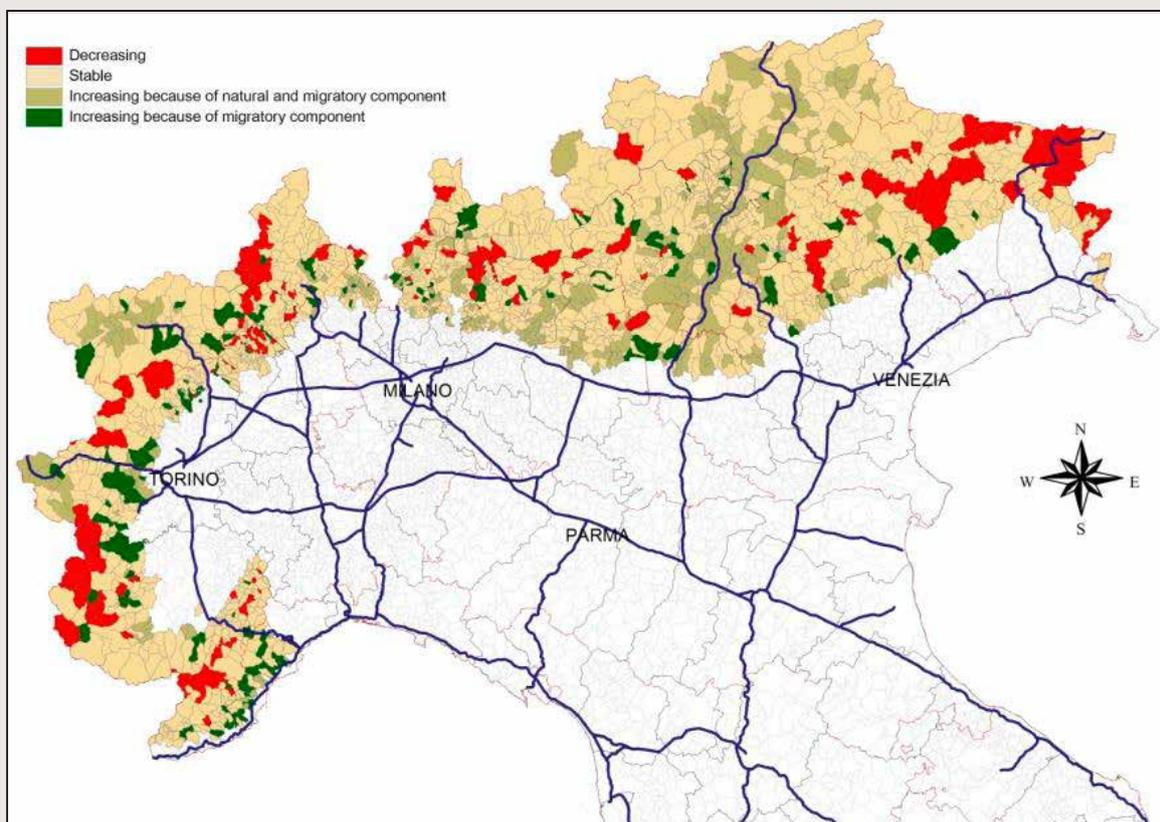


Figure 9: Italian Alpine municipalities by demographic increase/decrease (years 2004-2010).

and Prapelato, in the province of Torino. This increase was affected in many cases by migration. Figure 9 shows the main causes of population increase and decrease in the Italian Alps.

### **SLOVENIA**

In the 2003–2013 decade, the population growth rate in Slovenia was low and it was equal to 0.3%. Regarding the Alpine Convention area, the registered population growth rate was higher than the overall population growth rate in Slovenia in 27.4% of municipalities (17 of 62 municipalities), the highest rate was observed in the municipality of Logatec with a 2.0% growth rate, followed by the municipality of Prevalje with a 1.5% growth rate, and the municipalities of Hoče-Slivnica and Rače-Fram with a 1.4% growth rate.

In the 2003–2013 decade, positive population growth rates were mostly registered in municipalities that are partially located in the Alpine Convention area, and in municipalities located in the valley areas of the Gorenjska and Koroška region. In this period, more than half of the municipalities of the Alpine Convention area, specifically 53.2% or 33 out of 62 municipalities, faced a population decline, which was the fastest in the municipality of Slovenska Bistrica with an average annual population decline of 1.6%, followed by the municipality of Nova Gorica with a decline of 1.2%, and the municipality of Podvelka with a decline of 1.0%. Negative population growth rates prevail in municipalities located entirely in the Alpine Convention area; 66.6% of them registered negative average growth over the last decade. In contrast, a negative average growth rate was observed in only three municipalities that are partially located in the Alpine Convention area.

### **SWITZERLAND**

Switzerland has undergone an increase in the population between the 1980s and the present date, with a steady growth also in the years 2000–2010. In figures, the total population of Switzerland increased by 9.2% in this period (Jeanneret and Goebel, 2012) showing signs of agglomeration close to the main metropolitan areas.

Also in the Swiss areas located in the perimeter of the Alpine Convention, population growth seems to be concentrated in proximity of the main transportation roads and of the bigger cities: the most relevant increases can be observed in the Canton of Ticino, close to Lugano and Bellinzona, in the Canton of Vaud, close to the Lausanne area, and along the main roads in the Canton of Valais. All in all, the Alpine municipalities of Switzerland do not seem to suffer from significant depopulation processes: less than 3.0% of the municipal units analysed for this report saw a population loss of more than 2.0% between 2001 and 2010.

In comparison with Alpine tendencies, in the Swiss mountain areas, the fact that population growth appears affected by agglomeration concentrated in specific more accessible municipalities is not combined with consistent parallel depopulation processes in other more remote Alpine municipalities.

		Natural change	Natural change (per 1,000)	Crude birth rate	Crude death rate
Austria	Alps	-1,721	-0.5	5.6	5.8
	National	-	-0.1	9.4	9.4
France	Alps	11,091	4.1	12.8	8.7
	National	-	3.8	12.2	8.1
Germany	Alps	-4,195	-2.8	8.2	10.2
	National	-	-2.4	8.4	10.8
Italy	Alps	-7,418	-1.7	8.8	10.5
	National	-	-1.3	9.0	10.3
Liechtenstein	Alps/national	133	3.6	9.7	6.1
Monaco	Alps/national	-	-	12.7	8.1
Slovenia	Alps	848	1.3	10.6	9.4
	National	-	1.3	10.7	9.4
Switzerland	Alps	1,777	0.9	9.4	8.4
	National	-	2.2	10.3	8.0
Alpine region		537	0	8.8	8.6

Table 14: main indicators for the demographic balance of the population, for the Alpine area and the whole national territory of the eight Alpine countries. Data at 2012, except for France (year 2010) and for Monaco (year 2013).

## 2.4 POPULATION BALANCE

As already pointed out in the previous paragraph, demographic change is associated both with the inputs and outputs from the population stock due to natural causes (births and deaths) and with the population movements due to in- and out-migration.

In order to specify the *natural dynamics* that set the foundation for population growth or decrease, it is worth analysing three main different components separately: the natural change, the crude birth rate and the crude death rate (Table 14).

The natural change (the number of live births minus the number of deaths) is associated with the inputs and outputs from the population stock due to natural causes (births and deaths). This factor is therefore influenced by the population structure, in particular by the percentage of elderly people on the total of the population. This influence can be observed in the Alpine area, where lower values of natural change in areas characterised by a high total elderly population index can be observed. Areas characterised by decreasing values are mainly located throughout the Italian Alps, with remarkably low values on the western and eastern sides. A more fragmented framework is visible in other parts of France, Switzerland and Germany. Rather stable values can

be observed in South-Western Austria. On the other hand, higher values can be found in a corridor from Liechtenstein to Central Austria, including South Tyrol in Italy and the Austrian Tyrol, where the total elderly population ageing index is lower. Similar trends are also visible in the French department of Haute-Savoie and the city of Grenoble and its surroundings. In Slovenia, the situation is complex, with higher rates of natural change near the city of Ljubljana and in the bottom valleys, and lower rates in the most remote areas<sup>6</sup>.

To better understand the values and trends of natural change it is also necessary to analyse its inner components: births and deaths. For the description of these components, the most used indicators are the crude birth rate and the crude death rate. At overall Alpine level, a high variability of the crude birth rate (figure 10) can be observed, with the highest rate in the French Alps (12.8 per 1,000) and the lowest rate in the Austrian Alps (5.6 per 1,000). All in all, the overall situation at Alpine level appears fragmented and heterogeneous according to the single municipalities considered and no clear pattern emerges. Local specific factors seem therefore to have a higher influence on the birth rate than general developments at Alpine level.

For the Alpine territory in general, the crude death rate is strictly connected with phenomena such as ageing population,

6. For the purposes of this report, it is worth pointing out that the higher rates in some Slovenian municipalities are partly due to the fact that the municipalities only partly belonging to the Alpine Convention, have been considered in their entirety.

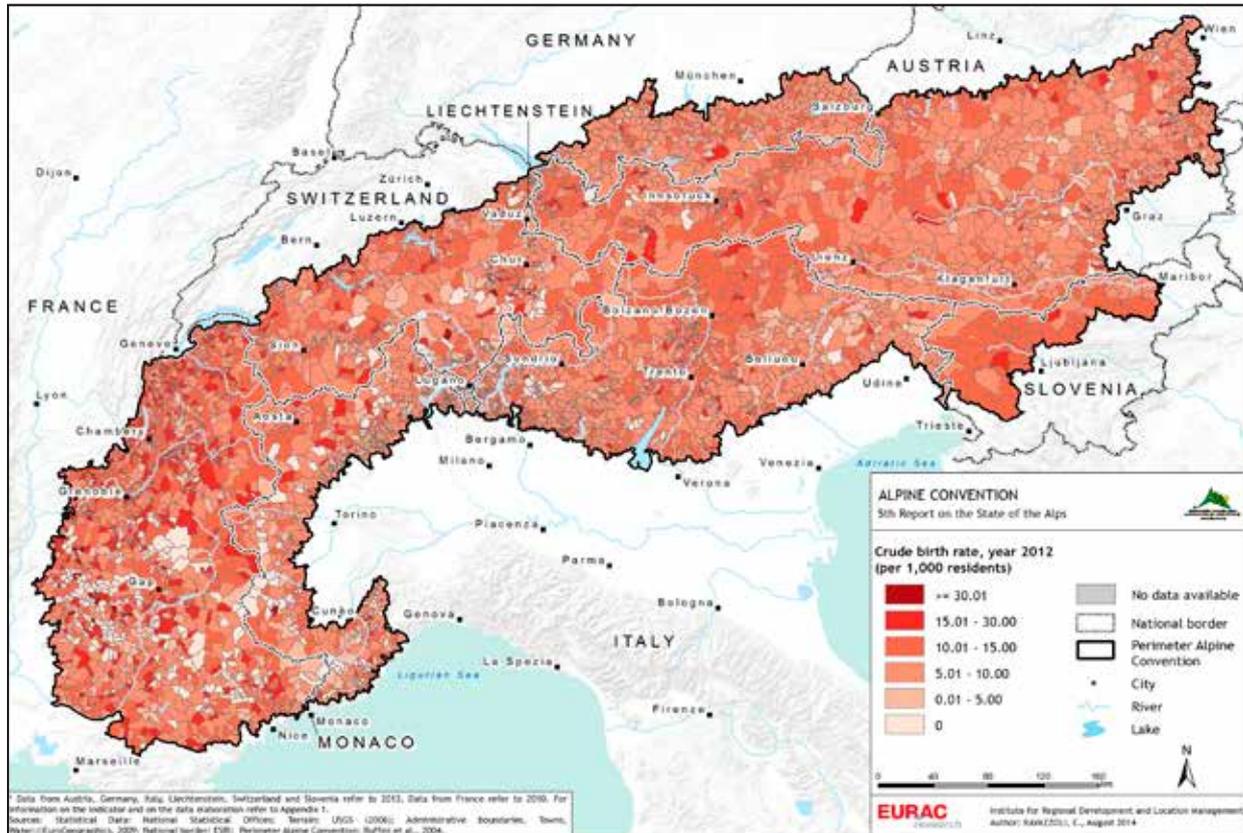


Figure 10: Crude birth rate (per 1,000 residents).

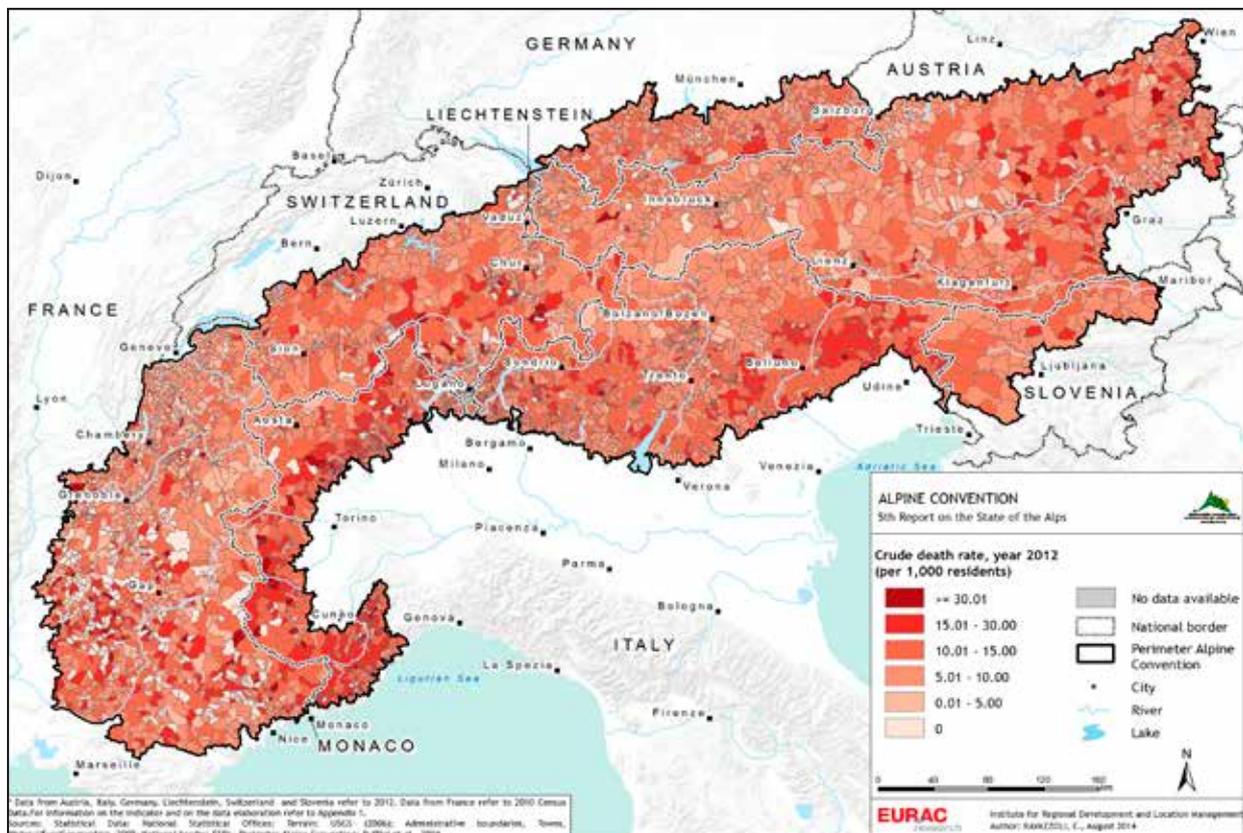


Figure 11: Crude death rate (per 1,000 residents).

	Austria	France	Germany	Italy	Liechtenstein	Slovenia	Switzerland
Total fertility rate	1.44	2.0	1.38	1.42	1.51	1.58	1.52
Life expectancy at birth	81.1	82.1	81.0	82.4	82.5	80.3	82.8

Table 15: Fertility rate and life expectancy at birth for the Alpine countries, year 2012.

with higher values of this indicator where the population is older. Therefore, despite the complex picture, which presents a high variability (figure 11), a higher crude death rate can be observed in those Alpine areas with a high incidence of the older shares of the population (for example, the more rural Alpine areas in Italy and Austria). The presence of foreign population with its young age structure, however, could be one of the factors that reduce the value of the indicator for territories where it is mainly present.

Natural population changes are not only linked to the population age, but also to other factors, such as familiar and reproductive behaviours that play an influential role. Among others, the presence of facilities and services that can encourage women to have children and families can be considered important for natural change. Another factor which plays an important role is the fertility rate, namely the average number of children per woman. There is a clear link between a positive natural change and the fertility rate, and the countries that display a higher fertility rate have also a positive natural change.

Another element which can provide interesting insights into health conditions and quality of life in different areas and that can therefore be considered a proxy for determining positive conditions for births, is the life expectancy at birth. Table 15 compares the fertility rates and the life expectancy at birth of the Alpine countries.

Another important factor that influences the total population change is the migration (figure 12); the predominance of this factor is due to the strengthening of migratory flows and to the reduction in fertility rates (mortality can be considered quite stationary).

The mixed effect of the natural and migratory components may result in different values and signs of the total population change but, most of all, may have completely different impacts on the characteristics of the stock of the resident population. The two main components of the migratory balance (in addition to the movement for "other reasons") are the internal migratory and the international migratory balances.

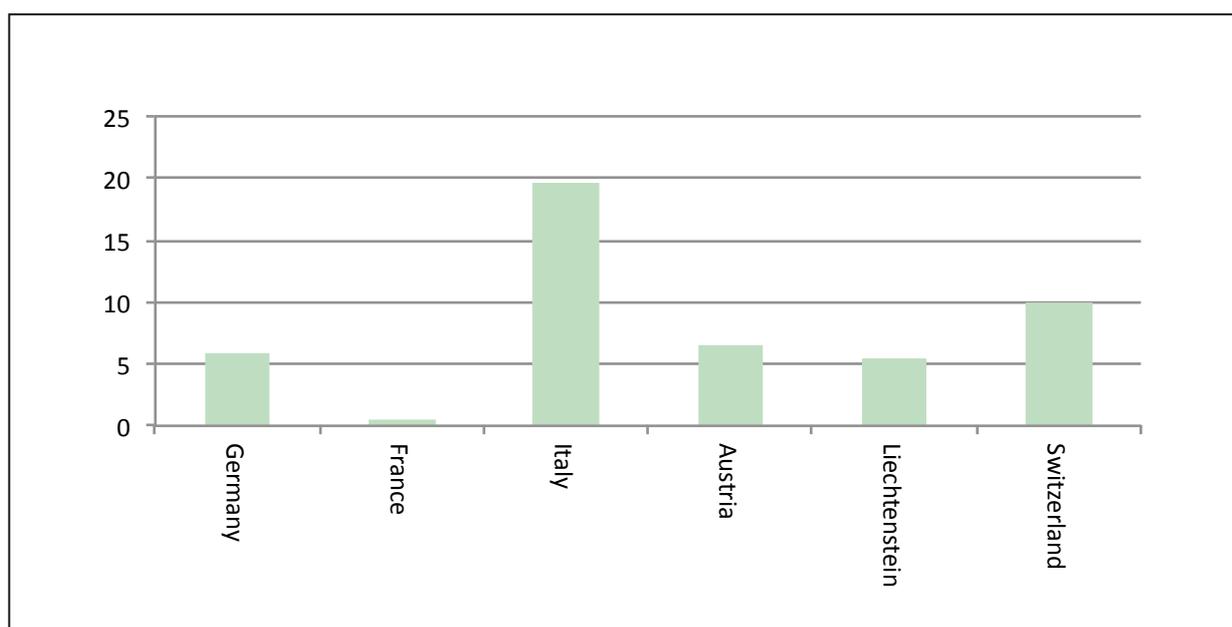


Figure 12: Crude rate of net migration plus statistical adjustments, 2013.

Migration seems to influence the Alpine territory in different ways. More specifically, regarding change in the population due to migration, highest values can be seen in most German Alpine municipalities, a great proportion of French territory, especially in Haute-Savoie, Var and Alpes de Haute Provence departments (even if sometimes fragmented), in the areas surrounding the cities of Salzburg and Vienna. In Italy, the framework seems to be much more complex and fragmented: in any case, zones with higher values are generally located in peri-Alpine areas and in the Central Alps (mainly Trentino-

Alto Adige). The lowest Alpine values, can be observed in almost all the Swiss territory (with only a few exceptions). Central Austria and Slovenia show more stable values<sup>7</sup>.

Theme analysis "Rising immigrant population and integration in rural areas" offers a detailed analysis of the topic with a focus on Austria, while theme analysis "Study on immigration to and emigration from the Alps with respect to the 'new highlanders'" offers a detailed analysis of in- and out-migration in the Alps.

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*7. It is not easy to deal with migratory balance for a transnational territory such as the Alps. For example, a distinction between "internal" and "international" migrations it is not easily applicable. The distinction would be possible only by taking into account the "departures-arrivals" matrix for changes of residence between couples of municipalities. However, this matrix is not always available in official statistics. For example, Italian data communicate the arrival and destination municipality for internal migrations, but not to know the destination municipality for changes of residence to locations abroad (possibly an Alpine municipality). Thus, it is only possible to evaluate people coming in and people going out of each Alpine municipality, giving a measure of "attractiveness" of each municipality in terms of migration. However, these figures may be affected, for example, by different levels of accuracy of the statistical information about out-migration produced by each member country to the Alpine Convention. A good proxy for the level of attractiveness, moreover, can be provided by the stock of foreign population resident in Alpine municipalities, which is easier to measure and to compare at the international level.*

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## Rising immigrant population and integration in rural areas

### Changes in the Geography of Migration and new Orientation of Integration Processes

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#### Introduction

The traditional perception of mountain regions as peripheral areas threatened by a weak economic performance and out-migration of substantial shares of its population has to be readjusted following recent trends in regional migration.

Few social phenomena had such a significant impact on the demographic, economic and cultural developments of our countries like migration. Beyond new waves of immigration towards cities that are widely acknowledged in research and public discussion, more in-depth analyses of current migration trends suggest that rural regions in large parts of Western Europe are increasingly affected by high immigration rates as well. In many rural regions of France, Spain, Italy, Germany, Switzerland and Austria, former migration losses have been displaced by positive migratory balances (Bauer and Fassmann, 2010). The most important feature bringing about this change was booming international migration due to economic, but also political reasons, like the EU expansion and the rising number of extra-Europe migration (De Lima, 2014). The following analysis focuses on the mountain areas in Austria and highlights this migration turnaround that has changed the character of the Austrian Alpine area from an out-migration area to an "immigration region". This shift in migratory movements is not limited to Austria, but is also relevant in most Alpine regions. The discussion on how to organise useful integration processes has become an important issue for regional development and mountain areas as well. It will be shown that recognition of the new situation and a reorientation in the shaping of integration processes towards establishing "welcoming communities" is required in order to use the existing development potential of immigrants.

#### From Out-migration to a Society of Immigration

Movements of people are highly differentiated in terms of geography and time. They can be broken down into circulatory movements (like tourism, second-home dwellers and commuters), non-permanent migrations (like seasonal workers) and permanent migrations (Bender and Kanitscheider, 2012). The following analysis focuses on the latter group, whose migration is caused by a variety of reasons. Economic and political migrants are the most relevant group, but particularly in mountain areas migration influenced by amenity and retirement is also important. Bender and Kanitscheider point out several hotspots of immigration into the Austrian Alpine region based on the high share of migrants aged over 50, and indicate that these areas might be shaped by the amenity type of migration (Bender and Kanitscheider, 2012: 240). However, this analysis does not differentiate between national (internal) and international migration. This theme analysis focuses on the separation of migration types and the particular relevance of international migration for mountain areas in Austria which is primarily based on employment.

Analyses carried out within research project "International Migration in Austrian Rural Areas" led by the Federal Institute for Less Favoured and Mountainous Areas<sup>8</sup> enabled a differentiation between internal and international migration at the municipal level. The study findings (Machold et al., 2013) reveal that rural areas in Austria are increasingly characterised by international immigration so that in almost all regions a negative balance in natural demographic development is offset by a positive migration balance. For the whole Austrian Alpine region this results into a positive migration balance

8. Commissioned by the Federal Chancellery and the Ministry of Agriculture, Forestry, Environment and Water Management, this project provided inputs to the Working Group "Diversity and integration within spatial development" of the Austrian Conference on Spatial Planning.

of +6,100 people (period 2002-2010), with an international migration balance of +60,400 and an internal migration balance of -54,300 (Dax and Machold, 2014).

While foreigners account for the bulk of international migration, national citizens mainly move within their country. These figures highlight changes in place of living that go across municipal boundaries. The relevance of the contribution of immigration to demographic development in Austrian Alpine regions is stressed by the demographic balance, which shows that in 2002-2010 the population rose by more than 56,000 units due to migration of foreigners, while the Austrian citizen migratory balance is -50,000.

The spatial differentiation in the Alpine region is mapped in figure 13 and confirms the assessment that all mountain regions are affected by a positive international migratory balance (except for Lienz with a yearly balance of -0.1‰). This was very different one or two decades ago, when hardly any region, unless those mostly equipped with specific amenities, showed positive in-flows.

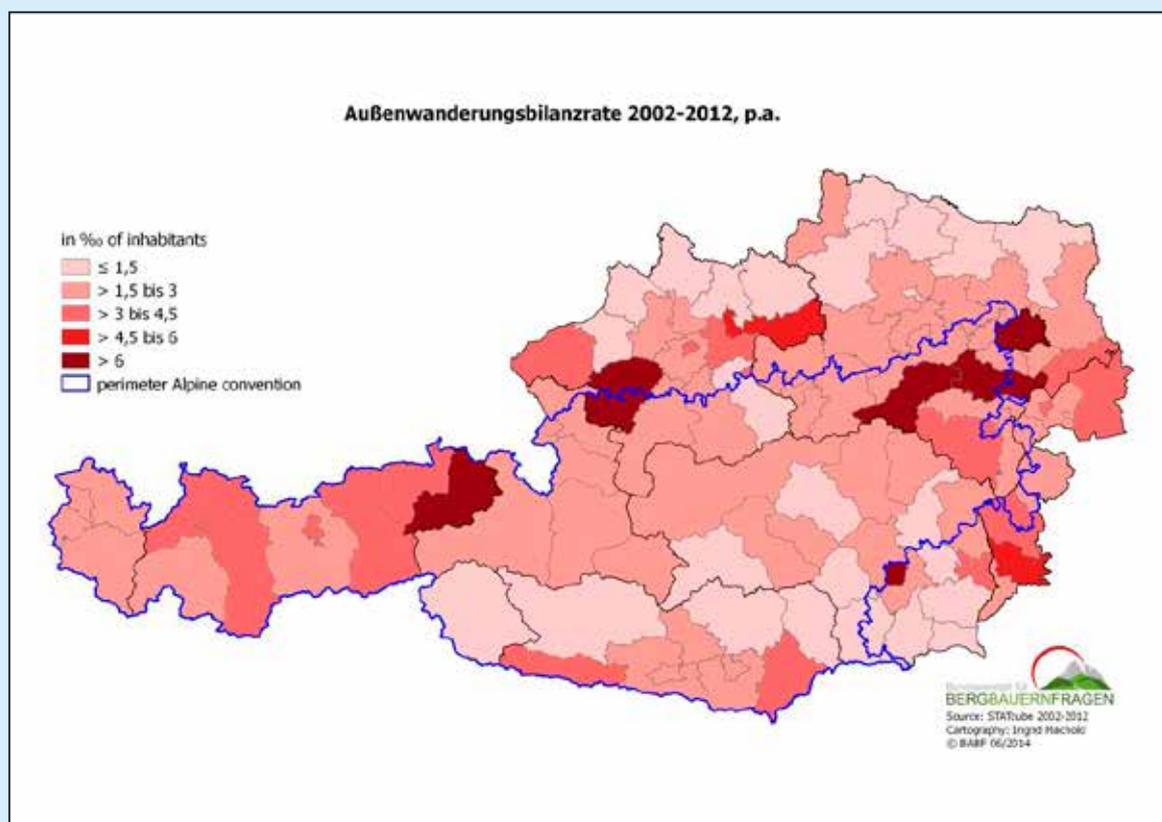


Figure 13: International migration balance 2002-2012 (yearly).

While international migration has a positive balance, the internal balance for most rural areas, and particularly peripheral mountain regions, is negative (figure 14). The spatial pattern of these movements is heavily influenced by the urban-rural dichotomy and the extension of agglomeration regions. This can be realised by the spaces of influence of the main Austrian cities, which stretch out to areas within the Alpine Convention perimeter. A positive internal migration balance is recorded almost exclusively in these areas.

The overall effect of migration for urban and rural spatial types underlines the need to differentiate and analyse the various components of migratory movements. It highlights a positive balance for all types of regions (predominantly urban regions, interim regions, rural regions close to cities, peripheral rural regions) for international migration and presents a different picture for internal migration. Urban and interim regions, which are the regions influenced by the

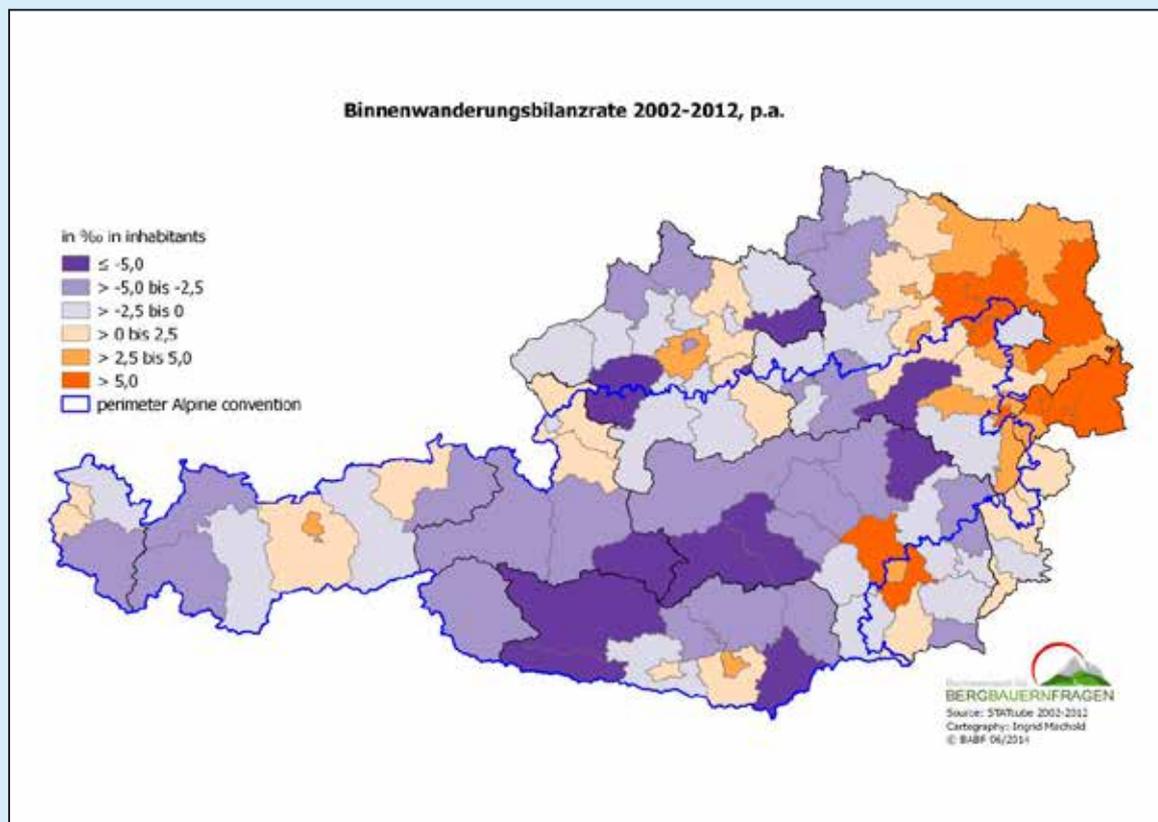


Figure 14: Internal migration balance 2002-2012 (yearly).

main cities, show a positive (internal) migration balance. All rural areas are characterized by a negative development and peripheral rural regions by a significant negative development. With regard to the impact on the overall population development this means that international migration has to offset internal population losses in most peripheral rural regions (figure 15).

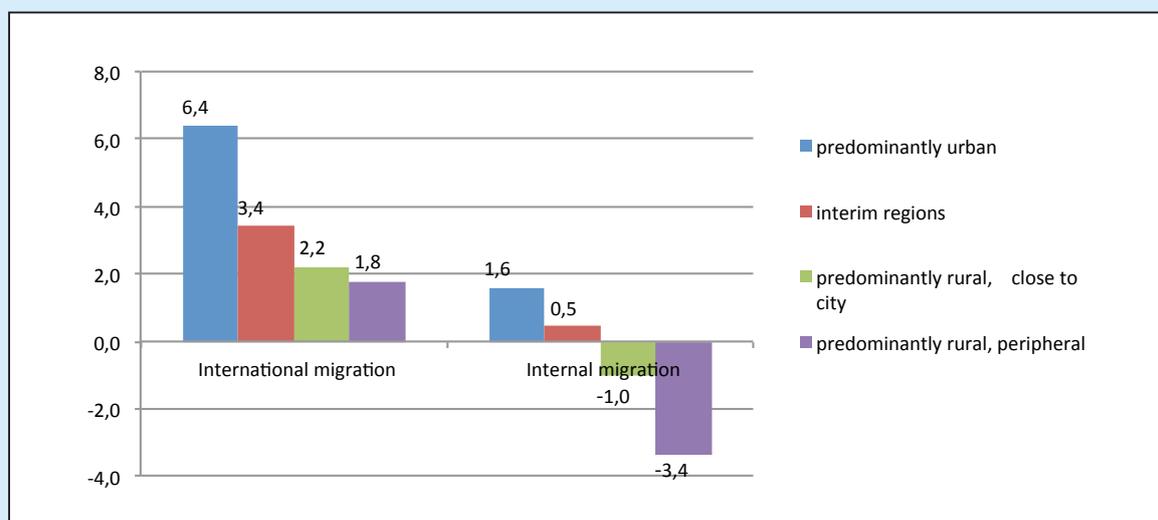


Figure 15: Migration balances in 1,000 persons, 2002-2012 (yearly). Source: Machold et al. (2013), p. 148; update by BABF

## An Enhanced Focus on shaping Regional Integration Processes

Factors for improving (social) integration processes of new entrants have to be investigated locally. Through the analysis of two small-scale regions with a high incidence of migrants and positive integration experiences, the above-mentioned study aimed at assessing views and perspectives of migrants and inhabitants of rural communities. One of the study areas was in Lower Austria and the other one in Vorarlberg, both in the Austrian Alps. Through qualitative interviews (with 61 respondents), interesting approaches and a set of general requirements for community action to support integration processes were drafted. These should in particular take into account:

- Taking pro-active initiatives in order to establish “welcoming communities” for new-entrants (Depner and Teixeira, 2012),
- Dealing not just with economic and employment issues, but also developing appropriate housing supply schemes in rural areas,
- Taking account of cultural diversity and attaching high priority and commitment to language skills development (for all age groups),
- Establishing “open access” through the provision of (physical and mental) “meeting places” in and across different social groups.

These exemplary experiences of local migrants underpin a widespread impression of a persistent failure in tackling these development needs and in highlighting the different living spheres within communities. Quite often it seems there are still huge barriers in place (which we called “mindset barriers”) that prevent integration of different population groups in rural communities. The challenges include significant spatial/regional factors that are increasingly addressed in the regional policy debate.

The Austrian Conference on Spatial Planning provided a framework through its thematic “Partnership” activities to discuss and define appropriate region-specific approaches and good practices to take into account spatial specificities in integration processes (OREK Partnerschaft, 2014). This debate showed that more and more initiatives engage in harnessing opportunities and are focused towards new development potentials made available by current migration patterns (Dayton-Johnson et al., 2007) (instead of having a problem-oriented perspective). While the basic features of such a different perspective are widely accepted in research, its implications for regional action are only partly clear. The rising number of “integration” examples shows local interest in improving the situation, but implementation in programmes remains tedious. Nevertheless local support, like action through Leader and Community-Led Local Development (CLLD) programmes, Local Agenda 21 groups and numerous other theme community networks in the Alps might serve as a springboard for reflexive action and coordination of relevant activities.

The shift in migration movements and the need for integration activities calls for an extension of the debate to rural and mountain areas as well. Such a reorientation implies a new definition of the role of migration to enhance the attractiveness of regions as living and working environment. Alpine regions (Corrado, 2013) seem to offer an attractive social and economic environment with increased immigration trajectories and development opportunities that should be appreciated and acknowledged by creative local and regional policies.

## National contributions

### AUSTRIA

Concerning natural population change, interesting regional differences can be traced in the Austrian Alpine area. For example, for the year 2012, the highest birth surpluses were registered in Vorarlberg, Tyrol and Salzburg. In contrast, large Alpine areas of Carinthia, Styria and Lower Austria showed large surpluses of deaths over births. The highest crude birth rate in the Alps was showed in the northern part of Vorarlberg, especially in the Bregenzerwald and in several areas of Tyrol and Salzburg as well as in isolated spots in the Alpine part of Lower Austria. Most parts of Styria and Carinthia had fairly low crude birth rates. On the other hand, the crude death rate was very high in many Alpine municipalities of Lower Austria, Styria and Carinthia, corresponding to higher shares of the elderly population. In contrast there were fewer deaths in the west of Austria, where the relative share of old people in the population is much smaller.

### FRANCE

As in the rest of France, fertility is high (fertility index is 2), birth rate and mortality rates are slightly higher than the national level. Life expectancy is similar to the national one: around 85 years at birth for women, and 79 for men; around 23 years at 65 for men and 27 for women.

Most of the arrivals in the French Alps come from the rest of France. This is because of several different reasons. Part of the arrivals concern people that work (or intend to work) in the main cities that lie just outside the territory (Geneva, Nice...). Very often, they lived previously in these cities and moved to the country to live in larger homes with a garden in suburban surroundings. These are usually families with children, which explains the positive index of migration of the 0-14-year-olds. These are short distance migrations.

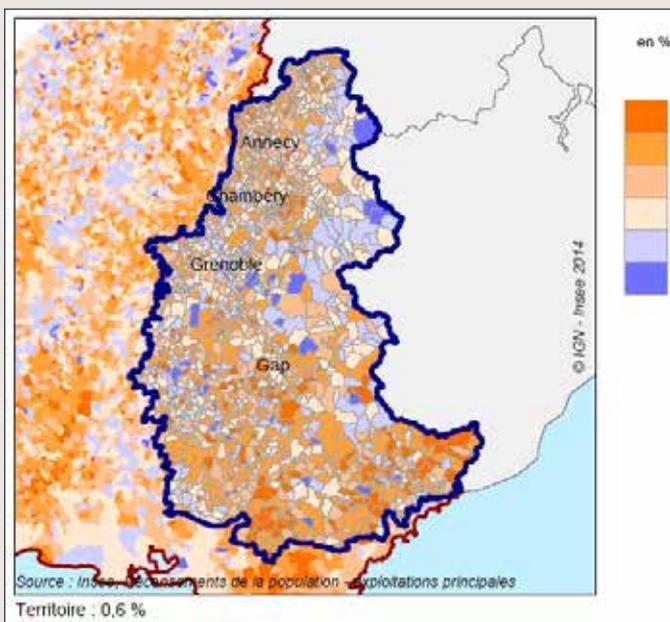


Figure 16: Net migration in the French Alps 1999 – 2010.

Another element of demographic attractiveness is a dynamic economy that attracts people looking for employment. They come from longer distances, predominantly from the north of France and the Paris region. All active ages are concerned, including the 24-29-year-old people: jobs in tourism are often taken by young people (sport, cultural and social animation). Arrivals are also determined by the general attractive environment of the Alps (landscape, scenery, weather...). These people are retired or close to retirement (the over 55-year-olds). The only age bracket with more departures than arrivals is between 15 and 24: these young people are attracted by large cities, and they are looking for employment or university studies. The only large academic town in the area is Grenoble, which has a positive migration index for the [20-29]-year-olds. Young people in the rest of the territory leave for the big academic cities of France and Europe.

### GERMANY

The German Alps experienced a migration balance of +2.8‰ per year from 2005 to 2009, while Bavaria had a ratio of +2.2‰ and the whole of Germany was +0.2‰. The largest migration loss of German nationals from Bavaria in 2009 were people leaving for Switzerland (-2,024) and Austria (-1,433). So far, the losses from emigration have been numerically offset by immigration from other parts of Germany – although with a downward trend. In 2009, Bavaria's

migration balance was as follows: emigration abroad of 6,978 German nationals against immigration of 14,073 German nationals from the rest of Germany. The migration gain per 1,000 inhabitants in the German Alpine region was generally significantly higher than in Bavaria or Germany between 1972 and 2009.

In order to describe the population balance for the German Alps and to compare it with the other Alpine countries, three main indicators have been analysed at LAU 2 – municipal – and NUTS 3 – district - level: the natural change, the crude birth rate and the crude death rate.

In absolute terms, the German Alps recorded a negative natural change in 2012, with a negative difference of -3,306 between births and deaths. In the whole of Bavaria, this negative natural change was offset by a positive migration balance (Bayerisches Staatsministerium für Arbeit und Sozialordnung, Familie und Frauen, 2011); the same cannot be said for German Alpine areas, to the lack of dynamic data on migration for this current report.

The crude birth rate (the incidence of births on the total population) in the German Alps is 8.2, which is lower than the general Alpine average of 8.8, while the crude death rate (the incidence of deaths on the overall population) is 10.2, which is higher than the average Alpine rate (8.6). These data reflect the higher incidence of the elderly population in the German Alps, compared with the overall Alpine area; this factor, combined with other ones such as a longer life expectancy, plays an important role in the determination of the German Alpine crude birth and death rate. A comparison with the data for the overall Bavarian state confirms this picture: Alpine German areas display slightly lower values for the crude birth rate and slightly higher ones for the crude death rate than the average values for Bavaria (at 8.5 and 10.0, respectively).

When analysing the data at district level, all the districts had a negative natural change in 2012, with the exception of the urban district of Rosenheim, which had a positive balance of 38 births. Among all districts (excluding urban ones), the highest crude death rate, combined with the lowest crude birth rate, was registered in the district of Garmisch-Partenkirchen, which is also the Alpine district with the highest rate of elderly people on the total of inhabitants.

As far as the analysis of the three population balance indicators for the municipalities is concerned, a complex picture with no clear patterns emerges. In this respect, the situation in the German Alpine municipalities is similar to that in other Alpine municipalities, and appears extremely fragmented based on local conditions at municipality level. In conclusion, the picture provided by the indicators analysed shows a situation in which the Alpine German areas, also due to their higher share of the elderly population, have on average a higher incidence of deaths and a lower incidence of births than the overall German (and, to a lesser extent, Bavarian) situation. Nevertheless, this complex municipal picture shows that the ageing factor, although relevant, is not the only driver of natural changes in the population. The driving forces have to be searched also in local and context-specific factors in individual municipalities and areas.

## ITALY

Municipalities that grow for natural and migratory reasons are located along the highway (A22), while those which increase due to migration are located in particular in the province of Torino. A positive balance of migration flows from abroad has been recorded almost everywhere, especially in the eastern part and in Liguria, particularly in lowland areas and along the road network.

The different components that determine a population increase or decrease can be studied separately by measuring population change. Most municipalities show steady natural change or negative growth. In 2012, only 29.6% of the municipalities recorded a positive natural change. In the whole Italian Alpine area, the natural change per 1,000 residents is -1.7, with respect to the Italian average of -1.3. The situation becomes more critical in some municipalities in Piedmont (Alpine municipalities in the provinces of Cuneo, Vercelli, Verbano-Cusio-Ossola and Torino), Friuli-Venezia Giulia (Alpine municipalities in the province of Udine with an average of -6.5) and Liguria (Alpine municipalities in the province of Imperia with an average of -7.8). The municipalities of Valloriate, Roaschia and Rittana show a particularly negative natural change (more than -60 per 1,000). On the other hand, Alpine municipalities with a positive natural change are the two autonomous provinces of Trentino-Alto Adige (2.4 for Bolzano/Bozen and 0.9 for Trento). Considering individual municipalities, the highest positive change (more than 20 per 1,000) is observed in Roaschio (province of Cuneo), Pedesina (province of Sondrio), Morterone (province of Lecco) and Claviere (province of Torino).

The crude birth rate (per 1,000 residents) in the Alpine area is 8.8, perfectly coherent with the Italian rate (9.0 per 1,000). The main valley floors mainly attract younger people, while remote valleys and regions at higher altitudes are characterised by a low birth rate because young people leave these areas. The Alpine municipalities in the provinces of Bolzano/Bozen, Trento, Aosta, Verona and Bergamo show the highest values (more than the average). The relation between this indicator and the natural change is very strong, e.g. in the case of Roascio (province of Cuneo), Pedesina (province of Sondrio) and Morterone (province of Lecco). However, it is worrying that crude birth rates in most municipalities are below the national average. In particular, the municipalities in the provinces of Imperia and Udine registered a very low crude birth rate (6.8 per 1,000 residents). In 127 Alpine municipalities no births occurred in 2012. Most of these are located in Piedmont, in the provinces of Cuneo, Vercelli, Verbano-Cusio-Ossola and Torino. Comparing this situation with the one observed ten years before is also interesting. Between 2002 and 2012 slight increases were registered in the Alpine municipalities of the provinces of Imperia, Pordenone and Cuneo. An increasing trend was observed in the Alpine municipalities of the provinces of Novara, Treviso and Bergamo.

The crude death rate (per 1,000 residents) in the Alpine area is 10.5, a similar figure to the Italian average of 10.3. Considering the geography of this indicator compared to the birth rate, the situation is exactly the opposite. Particularly high crude death rates were registered in the Alpine municipalities that belong to the provinces of Vercelli, Biella, Udine and, specifically, Imperia, which is well-known as one of the most areas with the highest elderly population in Italy. Once again, the Alpine area mainly affected by this critical situation is Piedmont (Alpine municipalities in the provinces of Cuneo, Vercelli, Verbano-Cusio-Ossola and Torino). Rittana, Raschia and Valloriate (in the province of Cuneo) have incredibly high levels (more than 60 per 1,000). Areas with high emigration have low birth rates and high death rates connected to changes in the population structure, with increasingly higher shares of elderly people. Alpine municipalities that belong to the provinces of Bolzano/Bozen, Trento and Lecco have the lowest death rates. This means that presumably young families are moving to more attractive Alpine locations.

In order to better analyse the natural element in the Italian Alpine population, another indicator appears to be particularly interesting: the total fertility rate (per 1,000 women). Unfortunately, these data are not available at LAU 2 level, but only at NUTS 3 level. However, some findings already discussed appear to be confirmed here. Migrations strengthened in the last decade and a higher fertility rate of migrants combined with the age structure of the migrant population determined a slight increase in the total fertility rate. This indicator is 1.42 in Italy. The Alpine situation is similar. Among the provinces with one or more Alpine municipalities, the highest fertility rate is in Bolzano/Bozen (1.67), Trento (1.6), Bergamo (1.58) and Aosta (1.57). In this ranking, Biella (1.3), Verbano-Cusio-Ossola (1.34) and Imperia (1.34) come last. These areas have already been mentioned during the analysis for their low birth rates and high death rates.

In Italy, life expectancy at birth of women was 84.4 years in 2012, and 79.6 for men. Analysing data at NUTS 3 level, since this indicator is not calculated at LAU-2 level in Italy, a higher life expectancy for men is recorded in eastern Italy than in the western provinces. An exception is Gorizia in Friuli-Venezia Giulia, one of the eastern Italian provinces, where life expectancy is low (78.9 years). The lowest life expectancy rates at birth are in Sondrio and Verbano-Cusio-Ossola (78.7 years), and in Belluno (79.0). The highest levels are in Trento and Lecco (80.8 years), and Treviso (80.7 years). With reference to female life expectancy the same geographical distribution can be noted: life expectancy at birth is lower in the west, in particular in Biella, Savona and Cuneo (84.1 years). The highest rates are nearly all in Eastern Italy: Como (85.7 years), Treviso and Trento (85.9 years). Analysing the data from 2000 to 2012 we can see that the Italian Alpine province with the biggest increase in terms of male life expectancy is Bergamo (+4.4 years), while the lowest is Udine (+3). For females, the biggest increase is in Lecco (+2.8) and the lowest in Sondrio (+1.2).

Life expectancy at 65 years (or average life span) is a statistical index used to measure the average number of years of life remaining for a person (male/female) who is 65 years old. In Italy, life expectancy at 65 for women was 21.8 years in 2012, while for men it was 18.3 years. As in the case of life expectancy at birth, life expectancy at 65 has a remarkable gender difference.

When analysing Alpine provinces, the lowest rates are in Western Italy, except for the province of Sondrio, in Lombardy (18.2 years). The highest rates for males are concentrated especially in the east: Trento (19.3 years), Bolzano/Bozen (19.2 years), Treviso (19.1 years) and the central province of Lecco (19.0 years). There are no big differences between the maximum and the minimum rate for males in the Alpine provinces. With respect to females, the lowest life expectancy

rates at 65 can be found in: Savona and Cuneo (21.7 years), Bergamo (21.8); the highest are in Trento (23.1 years), Treviso (23.0 years) and Pordenone (22.9 years). Differences between 2000 and 2012 data for males range from a maximum in Lecco (+2.8 years) and a minimum in Savona (+1.4 years). The increase in difference is lower for females than males, the maximum is in Biella (2.2 years).

Concerning migration flows from abroad, positive rates were recorded almost everywhere in the Alps, especially in the eastern part and in Liguria, particularly in lowland areas and along the road network.

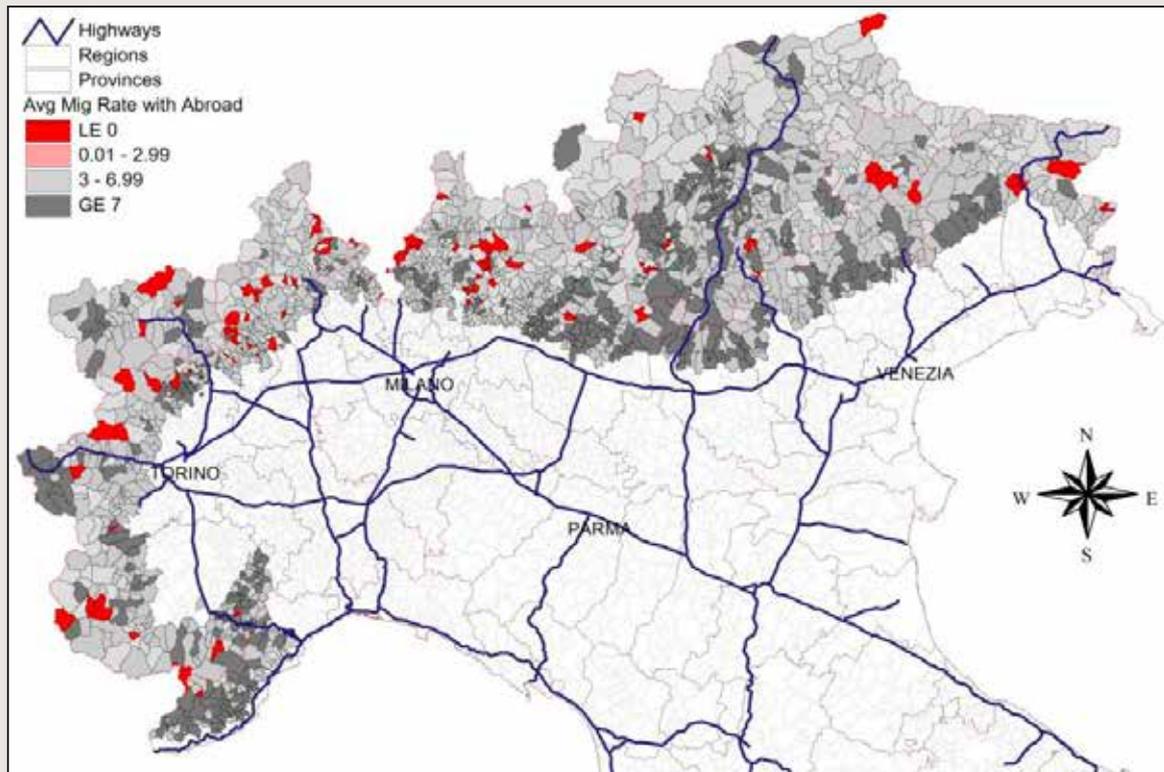


Figure 17: Italian Alpine municipalities by Average Annual Migration Rate with abroad. Years 2004-2011.

## SLOVENIA

In 2012, natural change in Slovenia was positive for the seventh year in a row. In that year, there were 2,681 more births than deaths. Natural change amounted to 1.3 per 1,000 residents, which means that for every 1,000 residents, there was a little over one birth more than deaths. In 2012, there were on average 1.6 live births per woman in Slovenia.

In the municipalities of the Alpine Convention, the population increased by 848 residents through natural change in 2012. Natural change per 1,000 residents was the same as the overall population growth in Slovenia, which amounted to 1.3 residents per 1,000 residents.

	Slovenia	Municipalities (LAU2) within the perimeter of the AC – TOTAL:	Entirely within the AC area	Partly in the AC area
Natural change (absolute values)	2,681	848	251	597
Natural change (per 1,000)	1.3	1.3	0.9	1.6
Crude birth rate (per 1,000)	10.7	10.6	10.1	10.8
Crude death rate (per 1,000)	9.4	9.4	9.3	9.2

Table 16: Main indicators of population demographic balance for the Alpine area and the whole national territory, year 2012. Source: Statistical Office of the Republic of Slovenia.

A thorough inspection shows that in 2012 the natural change in the municipalities of the Alpine Convention area was very diverse. More than half of them, i.e. 63% of municipalities of the Alpine Convention, registered a positive natural change. In 32 municipalities (51.6%) of the Alpine Convention, the natural change was higher than the overall population growth in Slovenia. The highest was registered in the municipality of Gorenja vas-Poljane, with 9.7 residents per thousand residents. Among all the municipalities of the Alpine Convention, this municipality registered the lowest ageing index (67.5) in 2013, followed by the municipalities of Logatec (a municipality partially located in the Alpine Convention area) with a natural change of 6.6 residents per thousand residents, Ajdovščina (a municipality partially located in the Alpine Convention area) with 6.2, and Mozirje (6.1).

Most municipalities with a positive natural change in 2012 are located on the outskirts of the Alpine Convention area, namely in the area of the Sava plains (Kranj - Jesenice). Almost all municipalities (15 out of 17) that are partially located in the Alpine Convention area registered a positive natural change.

In the remaining 23 out of 62 municipalities, i.e. 37.1% of the municipalities of the Alpine Convention, a natural population decrease was recorded in 2012, meaning that the number of deaths exceeded the number of births in the municipality population. Most of these municipalities were also characterised by a negative age structure of the population; more than half of them registered a negative average growth rate, i.e. depopulation over the last decade (2003–2013). In 2012, the most negative natural change was recorded in the municipality of Gornji Grad, where 14 more deaths than births for every 1,000 residents were registered.

	Number of births	Crude birth rate (per 1,000 residents)
Slovenia	21,938	10.7
Municipalities (LAU2) within the area of the AC – TOTAL:	7,058	10.6
entirely within the AC area	2,975	10.1
partly in the AC area	4,083	10.8

Table 17: Crude birth rate (per 1,000 residents), year 2012. Source: Statistical Office of the Republic of Slovenia.

In Slovenia, the fertility rate has been decreasing for decades. It has been declining particularly sharply since 1980. The lowest number of live births was registered in 2013 (17,321), after which the number of births started to rise slightly again. In 2012, 21,938 live births were registered in Slovenia. In that year, the crude birth rate, which indicates how many children were born per 1,000 residents, was 10.7. Approximately the same value was also registered in all the municipalities of the Alpine Convention in 2012, where there were 7,058 live births, i.e. 10.6 children per 1,000 residents. 28 out of 62 municipalities of the Alpine Convention, i.e. 45.9%, had higher birth rates than the overall rate of Slovenia. The birth rate was highest in the municipality of Solčava, with 17.4 children born per 1,000 residents, followed by the municipality of Gorenja vas with 15.9 children per 1,000 residents, Mozirje with 14.4 and Ajdovščina (a municipality partially located in the Alpine Convention area) with 14.3 children per one thousand residents. The lowest birth rate in the Alpine Convention was registered in 2012 in the municipality of Ribnica na Pohorju (5.8 children born per 1,000 residents), followed by the municipalities of Kranjska Gora (6.2), Lovrenc na Pohorju (7.0) and Ruše (7.2). All these municipalities also registered a negative natural change.

Most municipalities in the Alpine Convention area (39 out of 62, i.e. 63% of municipalities) registered birth rates between 10.01 to 15.0 children born per 1,000 residents. Most of these municipalities (79.5%) registered a positive natural change. Most municipalities (71.4%) with birth rates between 5.01 and 10.0 children per one thousand residents – representing 33.9% of all municipalities (21 out of 62) – registered a negative natural change.

While in Slovenia the number of births is declining, the number of deaths has not changed significantly in recent decades. The number of deaths per year in this period ranged from 17,000 to 19,000. In 2012, 19,257 residents died in Slovenia. The mortality rate reached 9.4 per 1,000 residents. In the municipalities of the Alpine Convention, the mortality rate per thousand residents (crude death rate per 1,000) in 2012 was the same as the overall mortality rate of Slovenia: 9.4. In

	Number of death (absolute values)	Crude death rate (per 1,000 residents)
Slovenia	19,257	9.4
Municipalities (LAU2) within the area of the AC – TOTAL:	6,210	9.4
entirely within the AC area	3,486	9.2
partly in the AC area	2,724	9.3

Table 18: Crude death rate (per 1,000 residents), year 2012. Source: Statistical Office of the Republic of Slovenia.

2012, mortality rates in individual municipalities of the Alpine Convention ranged from the highest mortality rate in the municipality of Gornji Grad (27.0) to the lowest in the municipality of Oplotnica (5.7). In 2012, 25 out of 62 municipalities of the Alpine Convention, i.e. 41%, registered a mortality rate that was higher than the overall mortality rate of Slovenia. In 2012, a large share of municipalities of the Alpine Convention (69.4%) in Slovenia registered a mortality rate between 5.01 and 10.0 deaths per 1,000 residents. 27.4% of municipalities of the Alpine Convention registered a mortality rate between 10.01 and 15.0 deaths per thousand residents. These municipalities are mostly located in the western and north-eastern part of the Alpine Convention area. In 2012, a mortality rate above 15.1 deaths per 1,000 residents was registered in only two municipalities.

In 2012, the total population change in Slovenia – the balance between natural change and net migration– amounted to 1.6 residents per 1,000 residents, i.e. a total of 3,325 residents. In Slovenia, more than half of all municipalities (123) recorded a negative overall net migration, which was in most cases a result of negative net migration between municipalities. 87 Slovenian municipalities recorded instead a positive overall net migration in 2012, which means that more residents immigrated to a specific municipality than emigrated from it. In 2012, 61.3% of municipalities (38 out of 62) in the Alpine Convention area recorded a population decline.

The reason for the negative total population change lies mainly in population emigration, i.e. negative net migration, together with low or negative natural change. The highest negative total population change was in the municipality of Črna na Koroškem (-15.4 residents per 1,000 residents), followed by the municipalities of Podvelka (-12.4 residents per 1,000 residents) and Vitanje (-12.3 residents per 1,000 residents).

24 out of 62 municipalities (38.7%) in the Alpine Convention area recorded a positive total population change. Most of these municipalities recorded a positive natural change and positive net migration. The highest total population change was registered in the municipality of Hoče-Slivnica with 22.4 residents per 1,000 residents, followed by Logatec (20.0), Rače-Fram (17.0) and Medvode (14.5). All the above municipalities are located on the outskirts of the Alpine Convention, with only a small part of their territory included in it.

In 2012, overall net migration (i.e. the sum of net (internal) migration between municipalities and net migration from abroad) was negative in 67.2% of the municipalities (41 out of 62). The highest population decline was recorded in the following municipalities: Gorje (-13.6 residents per 1,000 residents), Črna na Koroškem (-12.6 residents per 1,000 residents), and Vitanje (-11.9 residents per 1,000 residents).

In 2012, a positive overall net migration was recorded in 34.4% of municipalities, i.e. 21 out of 62. The highest level was in the municipality of Hoče-Slivnica (19.6 residents per 1,000 residents), followed by the municipalities of Logatec (13.4 residents per 1,000 residents) and Rače-Fram (12.9 residents per 1,000 residents). All the above municipalities are located on the outskirts of the Alpine Convention, with only a small part of their territory included in it.

In addition to natural change, population changes are also affected by international migration. For 50 years (with the exception of a few individual years – 1991, 1992 and 1998), Slovenia was considered an immigration country. While until 1993 the number of residents increased primarily as a result of natural change, in recent years the number of residents in Slovenia is believed to have increased primarily due to net migration from abroad. The number of immigrants in Slovenia strongly exceeded the number of people who emigrated from the country in the first years after Slovenia joined the

	Total resident population	Total number of migrants from abroad	Total number of migrants abroad	Migration balance with abroad	Migrants from abroad (per 1,000 residents)	Migrants abroad (per 1,000 residents)	Migration balance with abroad (per 1,000 residents)
Slovenia	2,058,821	15,022	14,378	644	7.3	7.0	0.3
Municipalities (LAU2) within the area of the AC – TOTAL:	663,739	4,507	4,242	265	6.8	6.4	0.4
entirely within the AC area	284,071	1,376	1,342	34	4.8	4.7	0.1
partly in the AC area	379,668	3,131	2,900	231	8.2	7.6	0.6

Table 19: International net migration, year 2012. Source: Statistical office of the Republic of Slovenia.

European Union (between 2005–2009). In 2010, this trend reversed. However, in the following year net migration from abroad was again positive.

In 2012, 15,022 people migrated to Slovenia, while 14,378 people emigrated, which means that net migration from abroad amounted to 0.3 residents per 1,000 residents. In 2012, 4507 people migrated to the Alpine Convention area (i.e. 6.8 foreigners per 1,000 residents), which accounts for 30.0% of all immigrants to Slovenia in that year. Most immigrants (69.4%) moved to municipalities that are only partially located in the Alpine Convention area. Most immigrants from abroad moved to municipalities with large urban centres: Maribor (1,189), Kranj (496), Nova Gorica (268), Kamnik (195) and Jesenice (160). With respect to municipal populations, the highest numbers of immigrants from abroad moved to the municipality of Nazarje (12.3 foreigners per 1,000 residents), followed by Maribor (10.7 foreigners per 1,000 residents) and Bovec (9.7 foreigners per 1,000 residents). In 2012, 4,242 people emigrated from the Alpine Convention area, which is 29.5% of all migrants from Slovenia in that year. Most of migrants from the Alpine Convention area, i.e. 68.3%, migrated from municipalities that are only partially located in the Alpine Convention area. In 2012 most people migrated abroad from municipalities with large urban centres: Maribor (1,234), Kranj (409), Nova Gorica (241) and Jesenice (248). Regarding the populations of individual municipalities of the Alpine Convention, the highest number of people migrated from the following municipalities: Jesenice (11.6 migrants per 1,000 residents), Maribor (11.1 migrants per 1,000 residents) and Kranjska Gora (8.1 migrants per 1,000 residents).

In 2012, the overall net migration from abroad, which shows the difference between immigration from abroad and migration abroad, in the Alpine Convention area was positive and amounted to 0.4 residents per 1,000 residents, i.e. a total of 265 persons. Overall net migration from abroad was slightly higher in municipalities that are partially located in the Alpine Convention area (0.6 residents per 1,000 residents) and slightly lower in municipalities that are entirely located in the Alpine Convention area (0.1 residents per 1,000 residents).

## SWITZERLAND

In order to describe the population balance in Switzerland and to make a comparison with the other Alpine countries, three main indicators concerning population balance were analysed at LAU2 – municipal – and NUTS 3 – cantonal - level: natural change, crude birth rate and crude death rate.

The number of births in Switzerland increased by approximately 5% from 2009 to 2012. The phenomenon is characterised by a trend that can be observed in Europe and in the Alps, i.e. the fact that the average age of women that have children is increasing (from 31.2 years in 2009 to 31.5 in 2012) (FSO, 2014). The average number of children per woman in Switzerland increased from 2009 and was 1.52 in 2013.

As far as the Alpine Swiss municipalities are concerned, the general trend is positive or stagnating natural change, with 61% of the Alpine municipalities having more births than deaths in 2011, and with a positive overall surplus of 1,777

births. At municipal level, natural change in the Alpine areas of Switzerland, as in the other Alpine countries, appears fragmented and without any clear pattern, except for a slight predominance of positive natural change near urban areas. An analysis at cantonal level, summing all the births and deaths for all cantons in 2012, shows a positive natural change in almost all Alpine cantons, except for Glarus (which has only a slightly negative difference of -2 between births and deaths), Grisons (-58) and Ticino (-159). For the cantons located only partially in the perimeter of the Alpine Convention, only Bern has a negative natural change (-279), while the others have all positive figures.

Regarding the crude birth and death rate, i.e. the number of births and deaths per 1,000 inhabitants, the Alpine Swiss areas show a lower average crude birth rate (9.4) than the Swiss average (10.3), while the crude death rate (8.4) is higher than the Swiss average (8.0). The reasons for a lower crude birth rate and a higher crude death rate in the Alpine Swiss area are difficult to understand and an analysis of these two indicators at municipal level gives a complex picture, with no clear patterns emerging. In this respect, the situation in the Swiss Alpine municipalities is similar to the other Alpine countries, and seems fragmented based on local conditions. While these indicators are usually associated with other demographic factors, such as the incidence of women on the total population, the overall differences regarding the incidence of women between Switzerland and the Alpine Swiss areas are not so relevant to fully explain this phenomenon. One possible reason is a higher incidence of the elderly population on the total population in the Alpine Swiss areas. This factor would also explain the higher incidence of the crude death rate in the Alpine Swiss municipalities.

An aggregate analysis at cantonal level provides a clearer picture: in the Alpine cantons with an overall higher rate of the elderly population, lower birth rates and higher death rates can be observed. For example, the lowest crude birth rate (8.3) is recorded in the Canton of Ticino, which has the overall highest share of the elderly population on the total population among the Alpine cantons (21.0). The highest crude birth rate in the Alpine cantons is in the Canton of Vaud (11.2), partially located in the Alpine Convention perimeter, and also one of the Alpine Swiss cantons with the lowest share of the elderly population (16.0).

In conclusion, the picture provided by the analysis of the indicators shows a situation in which the Alpine Swiss areas, also because of their higher shares of the elderly population, have on average, a lower incidence of births and a higher incidence of deaths in comparison to the Swiss rates. However, the complex municipal picture shows that the ageing factor, although relevant, is not the only driving force of population changes: apart from general demographic factors, other driving forces must be searched also in the local and context-specific situation of every individual administrative unit.

## Study on immigration to and emigration from the alps with respect to the 'new highlanders'

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### Issues and Key Questions

After a long period of emigration from predominantly rural Alpine regions, we can observe a trend reversal fittingly described as 'new immigration'. Studying this phenomenon has become a high priority, as emphasised by the Working Group Demography and Employment of the Alpine Convention, and has been intensively pursued in Romance-speaking Alpine countries (see Bender and Kanitscheider 2012 for further reference). Large parts of the Northern Alps, roughly from Grenoble to Salzburg, have experienced dynamic population growth for many decades with high in-migration (cf. Bätzing 2003). Nevertheless the question remains, how far can these 'new highlanders' be seen as part of a pan-Alpine trend or whether socio-demographic population development processes are under way in terms of types of in-migrants, reasons for migration and distances as well as immigration volume.

The study tries to find the best possible answers to the following key questions:

- How strong is immigration, where are its origins and can it offset emigration?
- Who are the in- and out-migrants or how can they be classified into types? How does migration impact on the local population structure?
- What are the national and regional differences in terms of in- and out-migration?

Results from the Alpine areas and municipalities should provide indications for a better management of the risks and opportunities of immigration.

### Data Set

Census data have hitherto been used to calculate the migration balance for a particular territorial unit, starting from population figures and the number of births and deaths, usually without providing any further indications on the spatial mobility of the population. Around the turn of the new millennium, central registration of residents was introduced, which now captures migration at municipality level by geographic origin and destination (place and country) as well as by sociodemographic features (gender, age, nationality and sometimes also birthplace) of the people on the move.

Data for this study, which is still under way, were provided by the national statistics authorities in Germany, Austria, Italy and Slovenia via special analyses (sometimes paid). In France and Switzerland there is no central registration of residents, migration is tracked in the census by asking the residence at an earlier point in time (in France: residence five years ago). This method fails to capture potential additional moves between that point in time and the census date so that the migration volume derived from these data is slightly underestimated compared to other countries (tab. 20).

### Initial Results from a Comparison of Alpine Countries – and some possible Assumptions

Below is a summary of the initial results of the study, focusing on differences between the Alpine countries. So far, data have been provided by Austria, France, Germany, Italy and Slovenia<sup>9</sup>.

It must be emphasised that only migration across municipal boundaries was analysed and the results were aggregated to larger territorial units.

*9. Note the following problems: (1) In France, out-migration to foreign countries is not captured; (2) German data are approximated, as migration of fewer than three people in any one municipality was not disclosed for reasons of data protection; (3) Italian data on emigration may be underestimated, due to foreigners who go abroad without notifying their departure to the Population Register Office of the Municipality of residence; (4) in Slovenia all data of municipalities only partly located in the Alpine Space were calculated in proportion to the share of the population within the Alpine Space.*

Table 20 shows in- and out-migration in percentage to the number of residents. In terms of figures, migration would replace the whole population in 20 years; in Italy it would take about ten years longer. From the countries which provided us with data from extra-Alpine areas as well (Austria, Germany, Slovenia) we know that this exchange would proceed slightly more slowly in the Alps (except for Austria) than in extra-Alpine lowlands, since in- and out-migration rates are a bit lower here. In all countries investigated in relation to this matter the total migration gain is lower in Alpine vs. extra-Alpine areas, in Slovenia there is even a slight negative balance<sup>10</sup>.

Total area of	MIGRATION BALANCE			IN-MIGRATION TO			OUT-MIGRATION FROM		
	Total	Alpine area	Extra-Alpine*	Total	Alpine area	Extra-Alpine	Total	Alpine area	Extra-Alpine*
Austria	3.9	1.1	5.8	50.7	51.5	50.2	46.9	50.5	44.5
France	n.a.	n.a.	n.a.	n.p.	54.8	n.p.	n.a.	n.a.	n.a.
Germany	5.2	3.9	5.7	68.5	65.9	69.4	63.3	62.0	63.7
Italy	n.p.	7.0	n.p.	n.p.	36	n.p.	n.p.	29.0	n.p.
Slovenia	3.2	-0.6	4.1	52.6	44.4	54.6	49.4	45.0	50.4

Tab. 20: Average annual changes (2002-11; F: 2003-08; SI 2008-12) in per mill of the total population (1/1/2002; FR: 1/3/1999; SI: 1/1/2008): Alpine area compared to non-Alpine area of the same region<sup>11</sup> (n.a. = not available; n.p. = not provided).

Migration to the Alpine Convention areas of these countries is largely (78-93%) domestic and even from the national Alpine area (the latter except for Slovenia) (table 21). In detail, about one third of the new residents in Austria and Germany (59% in Italy, 54% in France) come from nearby areas, i.e. from the NUTS 3 area of the destination municipality. These in-migrants can hardly be called 'new highlanders'.

There is less emigration abroad than immigration from abroad (except in Germany). This implies that Alpine countries – and their Alpine areas (except for Slovenia and probably France<sup>12</sup>) – are regions with migration gains that originate mainly from abroad.

Alpine area of	IN-MIGRATION FROM			OUT-MIGRATION TO		
	Inland Alpine area	Inland extra-Alpine area	Abroad	Inland Alpine area	Inland extra-Alpine area	Abroad
Austria	59.4	18.2	22.3	60.7	21.8	17.5
France	54.9	38.0	7.1	n.a.	n.a.	n.a.
Germany	49.4	36.1	14.6	52.5	32.7	14.8
Italy	45.7	34.1	20.2	56.7	38.6	4.6
Slovenia	31.0	52.4	16.5	30.6	57.8	11.5

Table 21: Source and destination regions of migration to and from Alpine areas in % of total immigration/emigration (2002-11; FR: 2003-08; SI: 2008-12).

Immigration from abroad is strongest in the Austrian Alps (table 21). A likely reason is the fact that two large immigrant groups from Germany and South-Eastern Europe (see table 22b) turn to the Austrian employment market. Domestic in-migration from a non-Alpine part of the country is highest in Slovenia (>50%).

In Italy, immigration from abroad to the Alpine area mainly comes from South-Eastern Europe and Africa, in France from North-Western Europe and Switzerland as well as from Africa, in Germany the main areas of origin are Eastern and – to a smaller degree – South-Eastern Europe.

10. For France and Italy no data have been made available yet that would allow a comparison of Alpine and extra-Alpine areas.

11. Austria, Slovenia: region = whole country; Germany: region = NUTS-2 political districts of Oberbayern and Schwaben.

12. In France, out-migration to foreign countries is not captured.

The size of general in-migration also appears to correlate with migration gains: if immigration from a country exceeds 1% of total immigration, the balance is usually positive (table 22ab). Immigration from America and Germany especially results in comparatively large migration gains. In Italy this probably reflects Italians coming back. In the Austrian Alps immigration of Germans in search of a job is likely to play a major role, with the absence of a language barrier speeding up and facilitating the permanent integration of the new residents.

Immigration from /	Migration balance in the Alpine areas of					Immigration to the Alpine areas of				
Migration balance with	AT	FR	DE	IT	SI	AT	FR	DE	IT	SI
Austria	-154.5	n.a.	-3.3	-0.3	n.a.	77.7	0.0	2.2	0.1	n.a.
France	0.5	n.a.	-0.2	0.1	n.a.	0.1	92.9	0.2	0.2	n.a.
Germany	101.6	n.a.	89.8	1.4	n.a.	5.6	0.3	85.4	0.7	n.a.
Italy	3.6	n.a.	-2.4	15.3	n.a.	0.5	0.3	0.7	79.8	n.a.
Liechtenstein	-0.8	n.a.	0.0	0.0	n.a.	0.0	0.0	0.0	0.0	n.a.
Slovenia	1.6	n.a.	0.0	0.1	15.6	0.2	0.0	0.1	0.0	79.5
Switzerland	-6.7	n.a.	-4.0	-0.3	n.a.	0.3	1.3	0.3	0.4	n.a.
NW-Europe	6.9	n.a.	-1.2	0.0	n.a.	1.0	1.3	0.5	0.4	n.a.
S-Europe	3.3	n.a.	-1.5	0.0	n.a.	0.4	0.6	0.6	0.2	n.a.
SE-Europe	91.1	n.a.	7.5	33	n.a.	6.3	0.5	2.9	6.9	n.a.
E-Europe	49.4	n.a.	13.6	13.9	n.a.	2.4	0.3	4.6	3.0	n.a.
Africa	14.8	n.a.	0.5	17.1	n.a.	0.6	1.3	0.3	3.6	n.a.
Asia-Oceania	40.2	n.a.	0.5	10.8	n.a.	1.7	0.6	1.3	2.4	n.a.
America	4.1	n.a.	0.5	8.9	n.a.	0.9	0.7	1.0	2.2	n.a.
Unknown	-55.1	n.a.	0.1	0.0	n.a.	2.2	0.0	0.0	0.0	n.a.
TOTAL	100.0		100.0	100.0		100.0	100.0	100.0	100.0	

Table 22a (left column): Migration balance with different countries or groups of countries in % of the total migration balance (2002-11; SI: 2008-12); Table 22b (right column): Share of immigrants from different countries or groups of countries in % of the total immigration (2002-11; FR: 2003-08; SI: 2008-12).

The demographic structure of the immigrants on the basis of the immigration figures and migration balances can be observed with respect to the local population in the same socio-geographic group (table 23).

In terms of nationality, immigration rates of foreigners clearly exceed those of nationals (with the exception of the French Alps). This results into highly positive balances for foreigners and only slightly positive (Germany, Italy) or even negative balances (Austria, Slovenia) for nationals. Generally, more men than women migrate to the Alpine areas, but the migration balance of men is lower than that of women (except in Slovenia and France); men seem to stay often for shorter periods. Of the five age groups in the study, immigration is highest in the 15-29 years age group (i.e. mainly education and young work migrants), but their migration balance is comparatively low (with the exception of the Italian Alps). This is in a distinct contrast to the extra-Alpine areas (insofar as they could be investigated), which show the highest balances in this age group. Clearly the duration of residence in the new Alpine place of residence is short.

The largest migration balances across the Alps are found in the 30-49 years age group and in the 0-14 years age group, i.e. in the migration of families (except for Italy: there the balance is largest in the 15-29 years age group). Migration in the 50+ age group is much smaller (Germany, Italy, France) or inexistent. This means that suburbanisation of the Alpine rim and of the vicinity of inner-Alpine cities is even more blatant in demographic terms than amenity migration of older people.

At municipal level, however, a highly differentiated spatial pattern emerges. This pattern is shown below for in-migration to Austria in the 50-74 years age group (further examples would exceed the scope of this report). This migration movement

Socio-geographic groups	Migration balance in the Alpine areas of					Immigration to the Alpine areas of				
	AT	FR	DE	IT	SI	AT	FR	DE	IT	SI
Total	1.1	4.0	3.9	7.0	-0.6	51.5	54.8	66.1	36.0	44.4
Male	0.8	4.1	3.8	6.8	0.6	53.2	55.3	68.2	36.6	48.6
Female	1.3	3.9	4.1	7.2	-1.7	49.9	54.4	64.0	35.4	40.3
Aged 0-14	3.8	4.3	4.6	6.7	1.5	47.3	40.8	49.7	38.2	35.5
Aged 15-29	0.1	1.0	0.9	15.2	-4.8	108.8	87.2	143.6	60.7	82.8
Aged 30-49	1.6	6.8	5.4	7.3	0.3	53.2	69.3	74.3	47.2	50.4
Aged 50-74	0.0	3.1	4.1	3.3	0.4	18.6	31.4	32.7	15.5	18.6
Aged 75+	-1.7	2.7	2.8	2.5	-0.2	21.6	23.9	28.4	14.1	32.1
Domestic nationals	-1.9	4.4	3.0	1.1	-3.6	36.9	56.4	56.7	25.2	35.2
Foreign nationals	34.2	0.8	15.5	196.9	121.1	215.1	42.1	180.9	382.5	410.5

Table 23a (left column): Average annual migration balance (2002-11; FR: 2003-08, domestic migration only; SI: 2008-12) per mill resident population of the same group;

Table 23b (right column): Average annual immigration (2002-11; FR: 2003-08; SI: 2008-12) per mill resident population of the same group.

is by no means evenly distributed in relation to the local population, since one might expect from rural emigration a subsequent return to rural areas. Instead, clear spatial hubs emerge, related with classic tourist areas.

## Outlook

Indicators will be derived from the migration figures and calculated at municipality level. The visual interpretation of maps for the entire Alps will make spatial migration patterns clear down to the local level (see figure 18). Correlation analyses

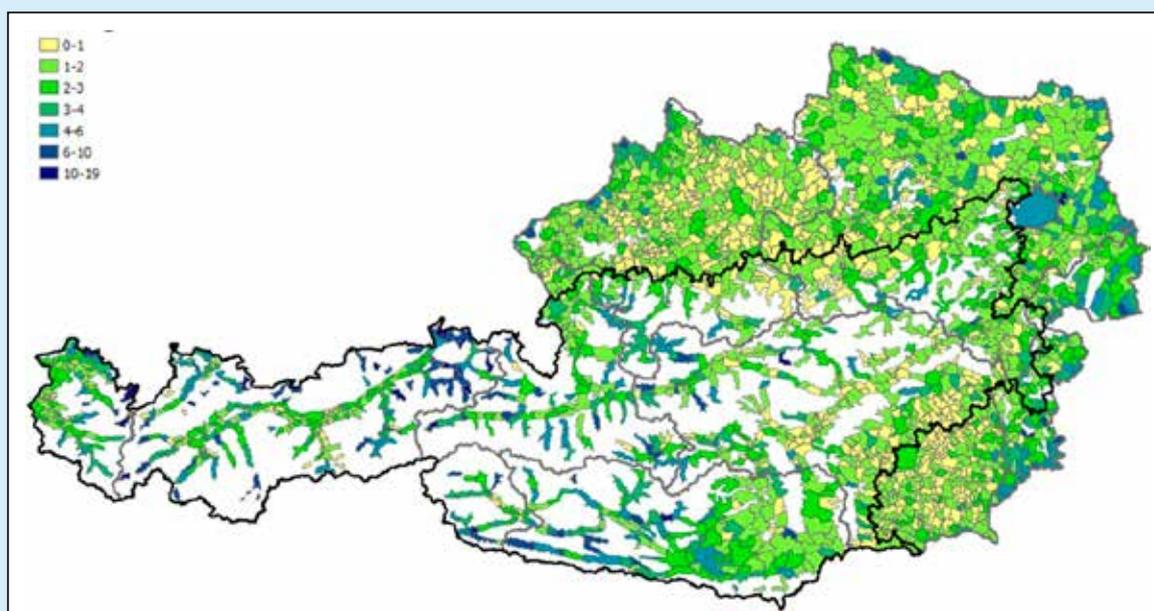


Figure 18: Share of immigrants from abroad to Austria, aged 50-74 in % of total immigration (2002-11).

using both migration and economic data (e.g. number of jobs in the three economic sectors) will point out certain types of migration destinations and thus help to interpret specific groups of migrants.

In order to definitively attribute immigrants to the migration types created while devising hypotheses (see. Bender and Kanitscheider 2012: 236), additional information on the reasons for migration would be needed, which unfortunately are not captured in official statistics. Socio-demographic variables (like gender, age, nationality and professional status) should therefore be intersected for each migration example. For reasons of data security most national statistical offices on principle do not make such detailed data available. Any statistical analysis will thus have to be backed up and fine-tuned with the help of qualitative studies in selected places.

### **Acknowledgements**

The author of this study acknowledges the generous support of the Working Group “Demography and Employment” of the Alpine Convention and especially the Italian Presidency. Without their joint effort with regard to the 5th Report on the State of the Alps, comprehensive migration statistics from five Alpine countries would not have been made available. Special thanks to ISTAT (Rom), SI-STAT (Ljubljana) and INSEE (Grenoble) for providing their data for free, and to Statistik Austria (Vienna) and the Bayrisches LfStaD (Munich) for providing data at a preferential rate.

#### Data Sources:

Migration Statistics 2002-2011, Population Statistics 1/1/2002 (Statistik Austria)

Migration Statistics 2002-2011, Population Statistics 1/1/2002 (DESTATIS and statistical offices of the Länder, provided by Bayrisches LfStaD)

Migration Statistics 2002-2011, Population Statistics 1/1/2002 (Istat)

Migration Statistics 2008-2012, Population Statistics 1/1/2008 (SI-STAT)

2009 and 1999 population Censuses (INSEE)

## Good practices

### Re-design Eisenerz – from Competition to Cooperation (Austria, Eisenerz)

#### Issues:

- promote demographic growth in a depopulated area;
- relaunch local/regional competitiveness;
- increase the knowledge of local trends and work out a strategy to develop the area and maintain existing services.

#### Type of measure:

- pilot actions;
- political measures.

#### Funding:

Province of Styria.

#### Background:

In the mining city Eisenerz the economy was dominated by ore mining for centuries. Due to industrial transformation (automation of production) in the 1970s, the number of inhabitants has been continuously decreasing since then, which has caused a downward spiral on the housing market and the economic and social situation. 38% of the population of Eisenerz is more than 60 years old, which makes Eisenerz the city with the highest average age in Austria.

#### Implementation:

- Diagnosis: In 2005, the "Wohnbund Steiermark" published the study "redesign Eisenerz", commissioned by the Province of Styria. The study dealt with aspects of the current and future housing situation in Eisenerz: about 800 residential units were unoccupied, spread over the whole city area.
- In 2006, an exhibition in Eisenerz in partnership with German programme "Schrumpfende Städte" raised the awareness of media and decision makers on the existing problems caused by population decrease. Possible solutions were shown.
- An action plan for the municipality's housing market until 2021 was developed and an idea competition "Eisenerz 2021" was carried out.
- Establishment of a legal body, where the municipality and representatives of the housing companies took joint decisions for the housing markets with a mixture of redevelopment, conversion and demolition. This transformed the situation of competition into a

situation of cooperation between relevant actors on the housing market.

- Networking and communication: Project "motivation Eisenerz": broad participation process with different groups: young people, entrepreneurs... Establishment of new forms of communication.
- Development of a broader vision for the future of Eisenerz: Renovation of houses, revitalisation of the historical part of the city, development of infrastructural measures, conversion of vacant flats into tourist apartments, initiation of research and development in the area of renewable resources and metal recycling (e.g. aluminium), strengthening the cultural programme with a summer festival, extension of the visitor programme "Abenteuer Erzberg".
- Development of a RCD strategy (redevelopment, conversion, demolition): to positively affect the residential market: flats were demolished, rehabilitated and upgraded.
- Private investors were attracted to invest in the city, e.g. a group of private investors are realising a holiday site with 500 flats.
- A network of relevant local stakeholders in the areas of politics, municipal administration, entrepreneurs, civil life and culture has been established, which turned out to be crucial for a change process.
- In 2012 a music and art festival was established ("Rostfest", [www.rostfest.at](http://www.rostfest.at)) to show the change in the region's image particularly to young people. Sociocultural formats turned out to be well-suited to integrate different population groups in the process. Rostfest spurred Eisenerz to use vacant houses and spaces ("urban campers"). The 2nd festival in 2013 also included a "craft and art" symposium, in which innovative products and new perspectives for mining cities by linking craft, design and creativity were discussed.

#### Indicators:

- Number of rehabilitated and upgraded residencies.
- Number of residencies converted to a different function (e.g. tourism).
- Number of households relocated from peripheral areas to the city centre.

#### Transferability:

The "Rostfest" festival is a new annual format, in which art and culture are linked to reposition of an old mining municipality. It can be used as a model for other shrinking cities.

#### Link:

[www.rostfest.at](http://www.rostfest.at)

## Good practices

### **“Coexistence” in Bressanone / Brixen (Italy, Municipality of Bressanone/ Brixen in the Province of Bolzano/ Bozen)**

#### **Issues:**

- relaunch local/regional competitiveness;
- promote demographic growth in a depopulated area;
- increase the knowledge of local trends and work out a strategy to develop the area and maintain existing services.

#### **Type of measure:**

- pilot action (project: questionnaire for the development of Guidelines for a good coexistence). Partners: EURAC/LP (European Academy of Bolzano/ Bozen); Municipality of Brixen/Bressanone;
- political measures (Municipality of Brixen/Bressanone).

#### **Funding:**

2,500.00 €.

#### **Background:**

The increasing diversification of cultures, languages and religions due to migration flows increasingly challenges the small rural towns of South Tyrol, which

are characterised by the historical coexistence of German and Italian speakers. Municipalities thus need to find new forms to ensure peaceful coexistence of this new and old diversity leading to a cohesive society. Those forms of coexistence aim at including the whole society.

#### **Implementation:**

The main aim of the project was to establish a common ground for future action in order to prepare guidelines for a “good coexistence” in the municipality. Through a participatory process, including actors of all groups in society, a questionnaire was developed. The questionnaire wanted to find out what the population of the municipality thought about different languages, cultures and religions and how they wished to organise the integration of this diversity in the future.

A report on the questionnaire was given to municipal officials. Based on this report, guidelines for “good coexistence” have been developed.

#### **Indicators:**

- cohesive society;
- development of guidelines for a “good coexistence”.

#### **Transferability:**

The project and the participatory process to create the questionnaire can be transferred to all municipalities, but also to larger territorial entities such as provinces or regions.

## 3. EMPLOYMENT AND EDUCATION

### 3.1 EMPLOYMENT AND UNEMPLOYMENT TRENDS

Demography and labour market are closely correlated and strongly linked to the development of an area. There is a mutual influence between the two phenomena and it is not simple to determine to what extent one can be identified as the driving force of the other. For example, the impact of the population age structure on a higher or lower labour supply is evident. However, a high demand for labour can promote changes in the population age structure, increasing the share of the active population. For example, a dynamic labour market can influence demographic trends by becoming an attraction pole for national and international migrants. These interactions also exist in the Alpine territory. In the Alps, significantly different local peculiarities strengthen the effects of the above-mentioned interrelations, locally drawing a very complex and differentiated picture.

The economic structure of the Alpine area is influenced by its orography. More accessible areas can generally count on a more vital economy and attract more investments. Generally, a lack of facilities and depopulation tend to be found in less accessible areas. The most accessible areas – usually located along the national road network in a valley – and their bordering regions often enjoy demographic and economic growth. Though improving accessibility does not ensure the economic success of a mountain region – a much

more complex concomitance of factors and conditions is believed to be able to trigger local development (Permanent Secretariat of the Alpine Convention, 2007).

As is the case of demographic development, economic development in the Alpine area is extremely heterogeneous and polarised. The symbiosis of tourism and services, industry, electric power generation, agriculture, transport and mobility is the basis of a sound economic development. Nowadays the majority of the Alpine population is concentrated in several modern multi-structured economic centres. Not only the orographic structure shapes the labour market; also “soft” factors (such as quality of life, leisure, culture and environment, services) tend to become more important than the traditional “hard” factors (payment, infrastructure) when considering the site conditions for setting up new enterprises with a high-quality labour force (ibid.).

In order to analyse the status of the labour market in the Alps, this report includes three main indicators: the employment rate, the unemployment rate and the inactivity rate. An overview of these indicators for the Alpine area and a comparison with the national average is shown in table 24. Labour market data in Germany and Switzerland are available only at NUTS 3 level<sup>13</sup>; therefore, the data for these countries are not shown in table 24 and cartographic representations are shown separately in annex D.

		Employment rate (%)	Unemployment rate (%)	Inactivity rate (%)
Austria	Alps	70.4	5.4	25.6
	National	69.6	6.0	25.9
France and Monaco	Alps	67.2	9.3	25.9
	National	63.8	11.6	27.8
Italy	Alps	66.2	5.9	29.6
	National	59.8	12.2	36.5
Liechtenstein	Alps/national	61.8	2.5	19.6
Slovenia	Alps	58.9	11.2	33.7
	National	58.7	11.5	33.6

Table 24: Main labour market indicators for the Alpine area and the whole national territory of Austria, France and Monaco, Italy, Slovenia – year 2011 (a). Italy data refer to 9 October 2011, Slovenia and Liechtenstein data to 2011, France data to 2010.

13. Ten districts (Landkreise) and three urban districts (Kreisfreie Städte) have been considered for Germany. Fifteen Cantons have been considered for Switzerland: however, only ten of these Cantons (Uri, Schwyz, Obwalden, Nidwalden, Glarus, Appenzell Ausserrhoden, Appenzell Innerrhoden, Graubünden, Ticino and Wallis) are located entirely within the Alpine Convention perimeter, five of them (Vaud, St. Gallen, Freiburg, Luzern and Bern) are only partially located within it.

The employment rate is the proportion of employed residents on the working-age population (15 to 64). This indicator is particularly important in relation to demographic changes, since high employment often ensures social stability and since employment is the main source of revenue for the majority of people and of the economic wellbeing of households (Tappeiner et al., 2007). Figure 19 shows the employment rate distribution in the Alps and figure 20 shows its change over the decade 2001-2011. The maps show cross-border and domestic trends. In general, in all countries, employment in the Alpine area is higher in comparison with national averages. Differences can be observed within the countries, with areas like South Tyrol in Italy and Haute-Savoie and Savoie in France showing higher employment rates than other Alpine areas belonging to the same country. Germany and Switzerland show similar patterns. While all German Alpine and urban districts (figure D2 in annex D) show employment rates above the average German rate (75.5), the situation in the single districts is heterogeneous and the average employment rate, in the districts of Garmisch-Partenkirchen and in the urban districts of Rosenheim, Kempten and Kaufbeuren is lower than the average Bavarian rate (78.9). In Switzerland (figure D1 in annex D) data show a heterogeneous situation, with half of the ten cantons entirely located in the Alpine Convention showing values above Swiss average (79.4) in 2012 while the other half's figures are below average. The lowest employment rate is in the Canton of Ticino (66.2).

Strictly linked to the employment rate, the unemployment rate (figure 21, with changes between 2001 and 2011 shown in figure 22) is the ratio between people searching for a job and the total labour force (employed individuals or seeking work). According to the maps, the overall Alpine situation is not homogenous with respect to this. The unemployment rate ranges from 2.5% in Liechtenstein to 11.2% in the Slovenian Alpine area. Except for Slovenia, the average unemployment rate is lower in the Alps than in the country as a whole. There are differences also within Alpine countries, with areas such as South Tyrol in Italy or parts of Eastern Savoie in France that show lower unemployment rates than other Alpine areas belonging to the same country.

As to Germany and Switzerland, while unemployment rates in the German Alpine districts are in line with the Bavarian average (2.9) and considerably and homogeneously lower than the other Alpine countries and the German domestic average (4.7) (figure D4 in annex D), the situation in the Swiss cantons is more complex (figure D3 in annex D). Cantons located in the perimeter of the Alpine Convention generally have lower unemployment rates than the average Swiss domestic rate (4.2), and, among these, Uri and Obwalden have the lowest unemployment rates in Switzerland (1.3) in

2012. The figures of the cantons of Ticino and Valais, both entirely located in the Alpine Convention perimeter, are above the national average unemployment rate (8.0 and 5.1 respectively).

“Non active people” are defined as those individuals who are classified as neither being employed nor seeking work (figure 23). In France, Italy and Slovenia, the inactivity rate is higher in the Slovenian Alps (33.7% vs. 25.9% in the French Alps and 29.6% in the Italian Alps), which is also higher than the Slovenian domestic average (33.6%).

### 3.2 EMPLOYMENT BY SECTORS

The Alpine economy, traditionally based on agriculture and livestock farming, has developed industrially later than other regions in Europe. Until the late 1970s, industry was the dominant sector in the Alps, with the highest employment rates, while today available figures show a predominance of services on the total amount of jobs in the Alps (as is the case for the whole of Europe).

The primary sector is still particularly important, also in political and socioeconomic terms for its connection with the preservation of the cultural landscape and of the hydrogeologic balance (Permanent Secretariat of the Alpine Convention, 2007). However, the structure of agriculture has largely changed in recent decades. Agriculture is often combined with other forms of economic activities and seems to depend on the features and performance of other regional economic sectors. The number of jobs in the primary sector is rather low; however, seasonal and part-time jobs are common and employment in agriculture is still important where substantial labour force is needed (e.g. in orchards) or in those sectors where various activities are combined or additional farm activities exist (e.g. farm holidays). The ratio between jobs in the primary sector and total jobs is higher outside urban areas. Locally, a high share of primary sector jobs often goes hand in hand with a low level of secondary sector jobs (ibid.).

In the Alps, the share of employed people in the industrial sector is decreasing. However, in the early 21st century industry accounted for about 36% of the jobs, with regional variations. In some regions, especially in the Western Italian Alps, industry employment rate was higher than national average (e.g. in the manufacturing sectors 27.7% vs. 20.2%).

The majority of jobs in the Alps are currently in services (market & non-market), as is also the case in the other European regions. The development of the tertiary sector in

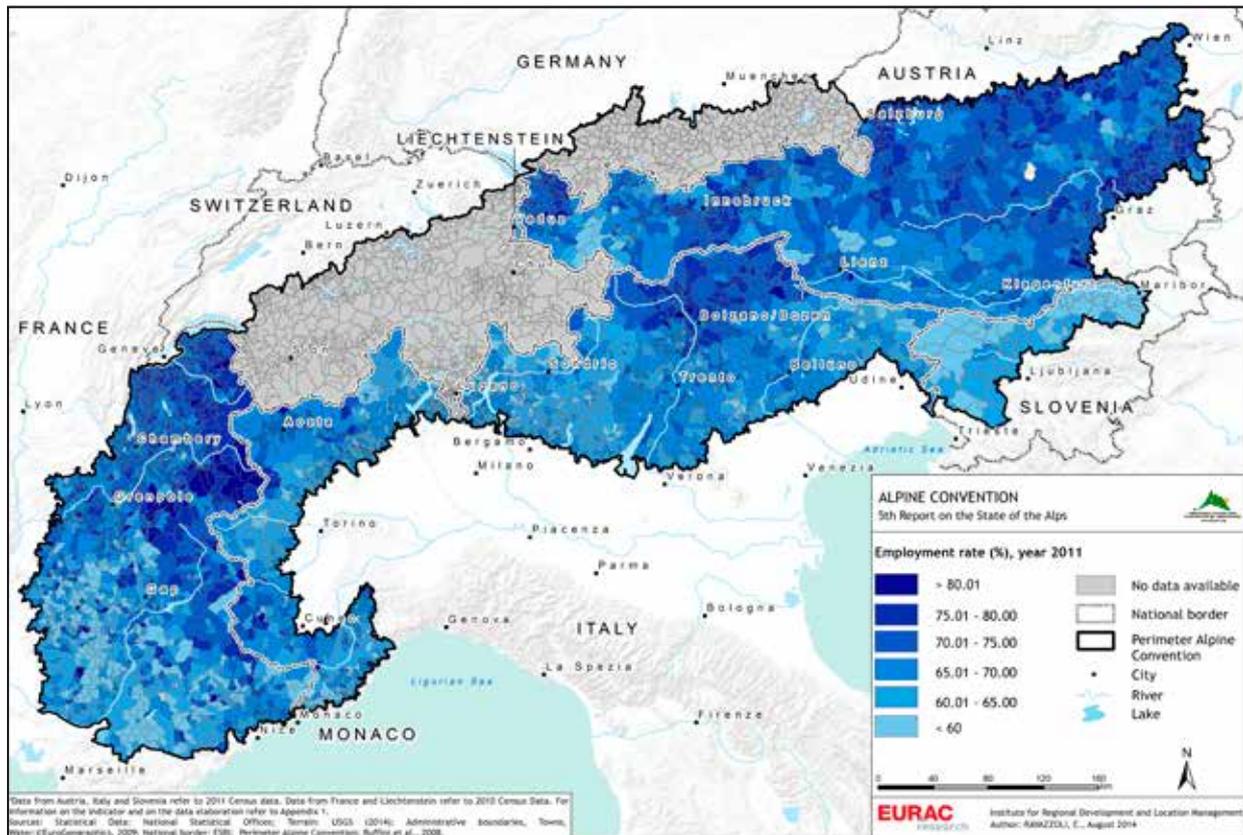


Figure 19: Employment rate (%).

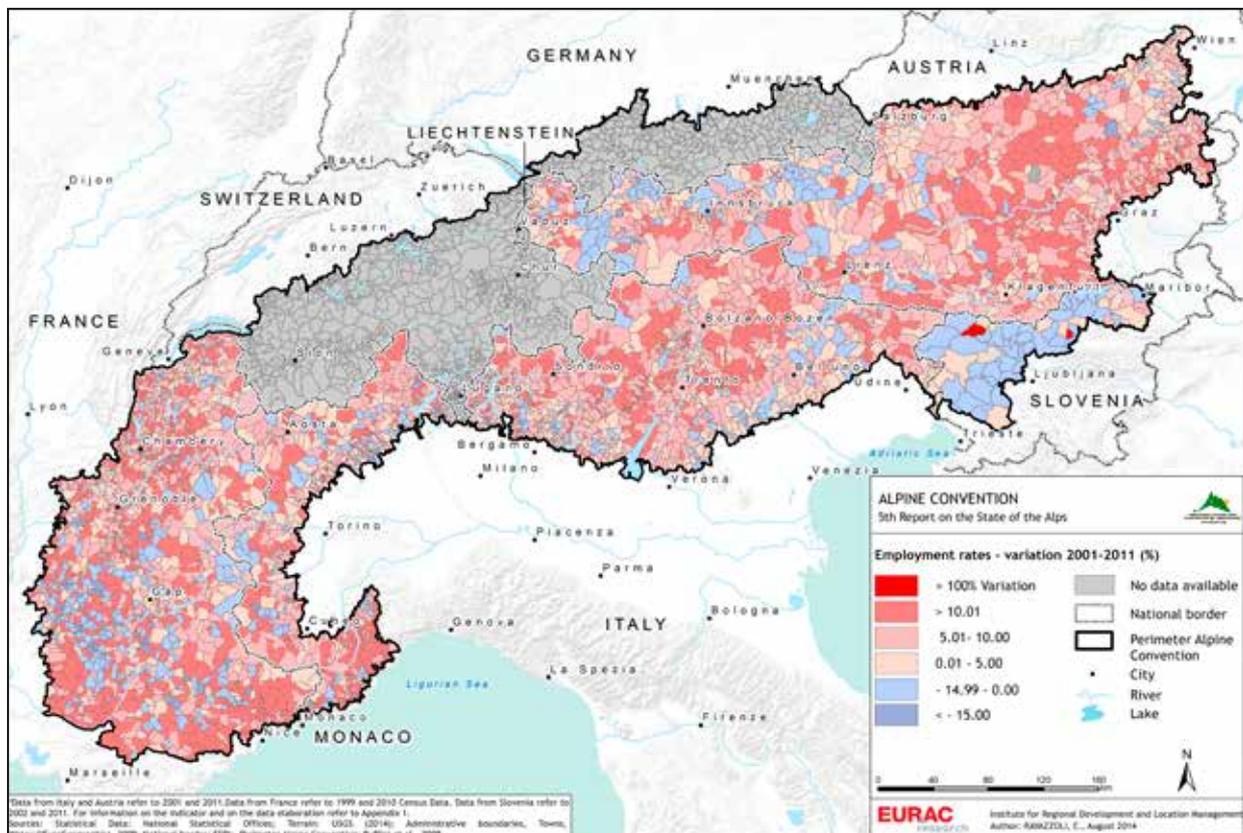


Figure 20: Employment rate (%), change 2001 - 2011.

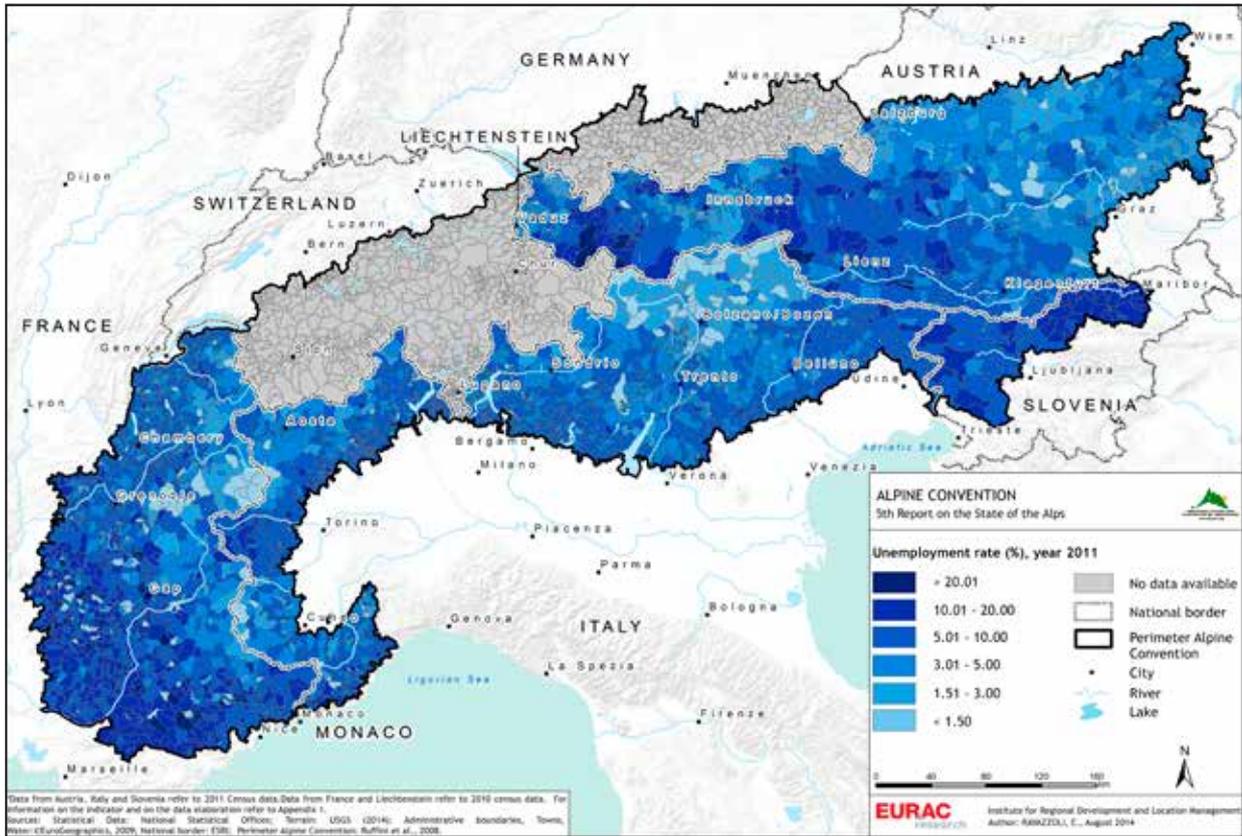


Figure 21: Unemployment rate (%).

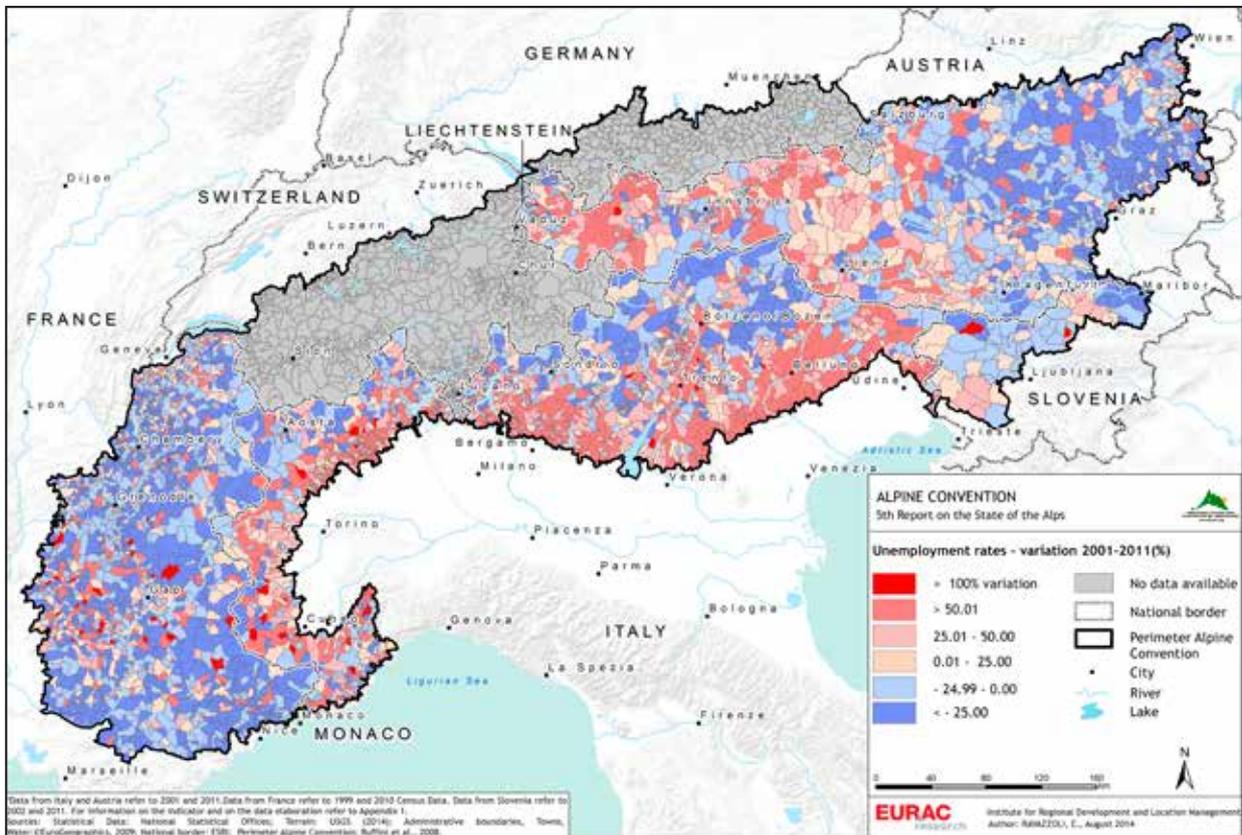


Figure 22: Unemployment rate (%), change 2001- 2011

the Alps is comparable with the trend in the rest of Europe. However, the importance of the tertiary sector varies from one region to another: in the French Alpine municipalities, the share of jobs in services exceeds 75%, in the Italian Alpine area this rate is roughly 65%. Employment in the service sector has been rising since the 1980s. The location of third sector's activities along the Alpine range depends on different factors: for business service, the presence of economic activities is a key factor, while the presence and number of inhabitants is relevant for services to individuals. For public administration services (which are present in all municipalities, but are more developed in major urban centres), the key factors are the level of administrative functions and duties performed, while the presence of cultural or natural amenities in the Alps is vital for tourist services.

Concerning tourism, the extremely local nature of its development in the Alps is made apparent by the figures estimated by Bätzing for the 1990s (Alpine Convention, 2012):

- approximately 46% of all accommodation were concentrated in only 5% of Alpine municipalities;

- only 10% of all municipalities (accounting for about 8% of the total population of the Alps) had a tourism-based economy;
- the incidence of tourism was minimal (fewer than 0.1 accommodation facilities per inhabitant) in about 40% of all Alpine municipalities and was modest (between 0.1 and 0.5 accommodation establishments per inhabitant) in another 40% of them.

Tourism is a major economic sector today, and plays a key role especially for the inhabitants of the high valleys; it was estimated, for instance, that in 2000, tourism accounted for 35.4% of the GDP of Oberwallis, the highest part of Canton of Valais, compared to just 23.1% for Central Valais and 18% for Lower Valais (Berwert et al., 2002). Winter tourism generates a revenue of about €50 billion each year and an estimated 10 to 12% of all jobs in the Alps (Permanent Secretariat of the Alpine Convention, 2014). Most tourist destinations are characterised by positive migratory and commuting flows and by higher employment rates and job density indexes in the surrounding areas (Permanent Secretariat of the Alpine Convention, 2014).

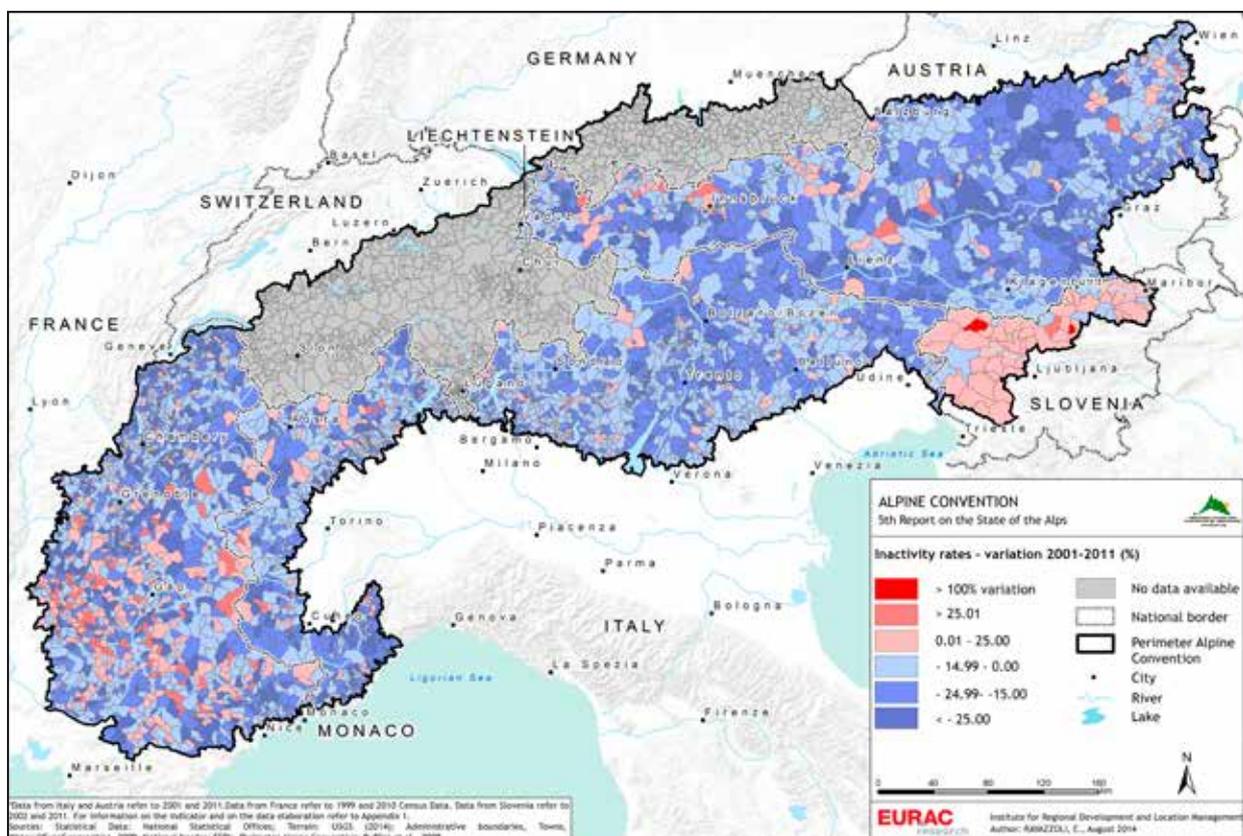


Figure 23: Inactivity rate (%).

## The Italian alpine region as a mosaic of local economies: social features

*Fabio Sforzi (Parma University, Italy)  
and Angela Ferruzza (Italian National Institute of Statistics)*

The Italian Alpine Region is a diversified mosaic of local economies. Local economies are defined according to Local Labour Market Areas (LLMAs) identified by Istat in 2001, while their economic and social features are derived from the information gathered in the 2001 and 2011 censuses.

The local economies of the Alpine region are specialised in manufacturing: “industrial districts” of small and medium enterprises (SMEs) and “industrial hubs” of large companies and services, “cities” and “tourist resorts” (figure 24). Local economies are classified according to the main component of their economic structure defined by a coefficient of specialisation. For example, tourist resorts correspond to LLMAs specialised in consumer services (services dominated by accommodation and food).

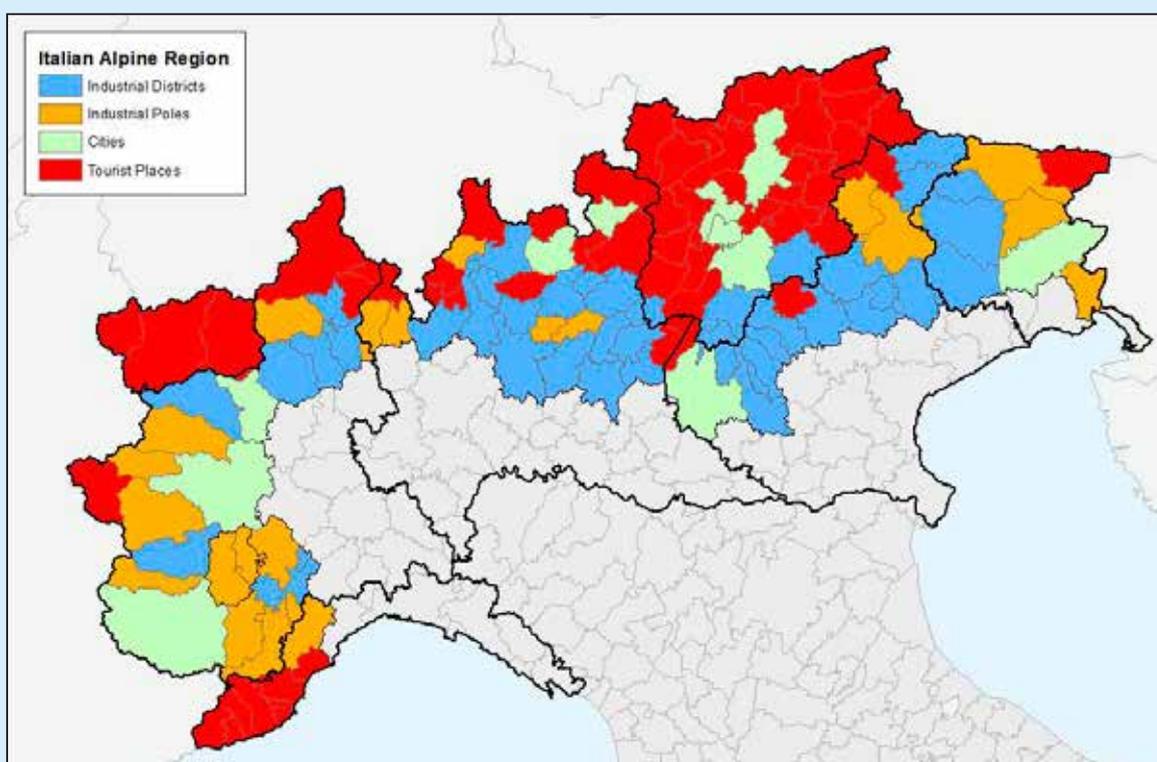


Figure 24: The Italian Alpine region: a mosaic of local economies.

Tourist resorts (42.8%) and industrial districts (32.8%) are the most representative local economies in number of LLMAs in the Alpine region. Together they account for more than half of the regional population (55.0%) and employment (54.4%). Also industrial districts feature high figures (43.0% in both cases).

In the 2001-2011 decade, the Italian economy suffered from a heavy loss of manufacturing jobs. Industrial districts, like the industrial hubs, lost jobs. The districts of the Italian Alpine region were no exception (figure 25). However, some districts lost more jobs than others, and the geographical distribution of job losses does not follow the traditional west-east divide. Piedmont is not a typical “district region” like Lombardy or Veneto. Districts located in the latter two regions have lost more jobs than the average; three of the four districts of the region which gained manufacturing jobs belong to Piedmont (Saluzzo, Santo Stefano Belbo and Cortemilia specialised in food production), while the fourth is located in Lombardy (Vilminore di Scalve, specialised in mechanical manufacturing).

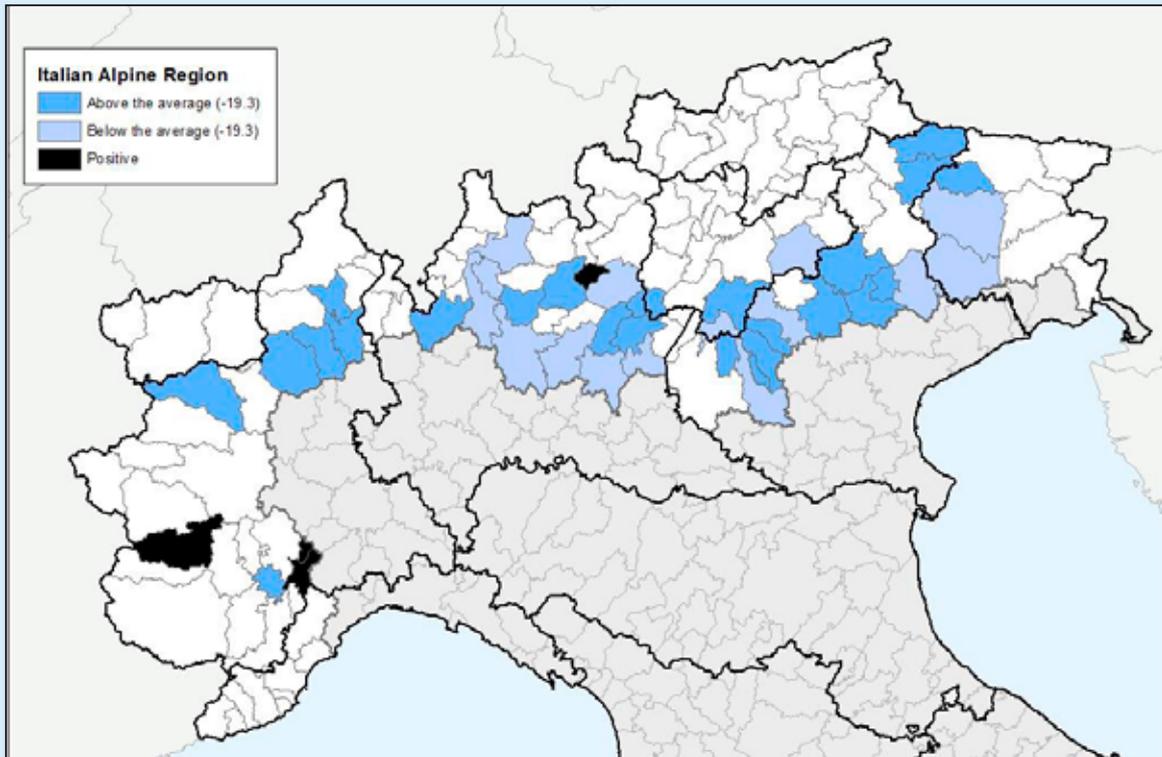


Figure 25: The Italian Alpine region: percentage changes in manufacturing jobs by industrial districts, 2001-2011.

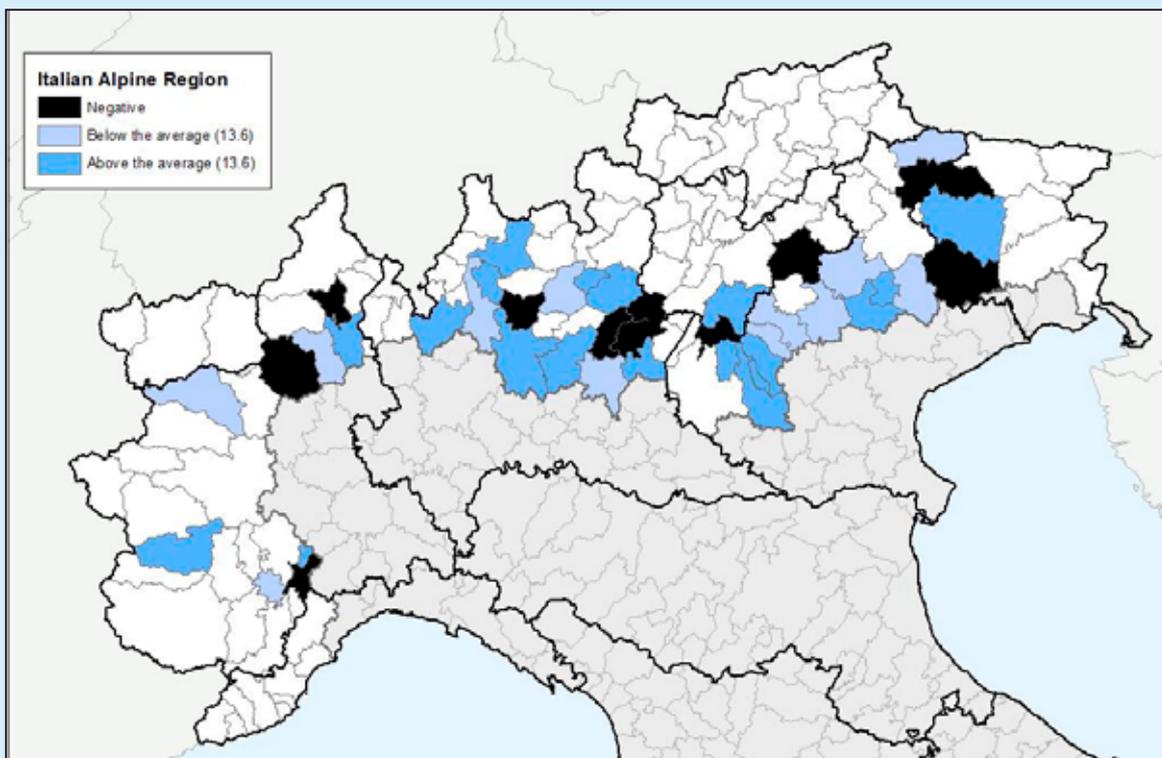


Figure 26: The Italian Alpine region: percentage changes in business services jobs by industrial districts, 2001-2011.

The shift to services in the Italian economy took place during the 1980s, when manufacturing industries recorded lower employment levels than non-traditional services (i.e. business, consumer and social services). Employment growth in services continued in subsequent decades.

The growth of employment in business services is particularly significant in the industrial districts. As is well known, their industrial organisation is based on intercompany partnerships specialized in different stages of the same production process. Business services organise the national and international trade of goods manufactured in the district. As a consequence, a greater number of business services in the districts means greater market openness.

Over the past decade, the number of jobs in business services in the industrial districts of the region changed unevenly (figure 26). Growth slowed down in some districts, while it was negative in others. Districts with a negative performance are scattered throughout the region, although some of them are clustered like Lumezzane, Zogno (Lombardy) and Storo (Trentino) or Ampezzo (Friuli-Venezia Giulia) and Pieve di Cadore (Veneto). These clusters are specialised in mechanical manufacturing.

Concerning tourism, consumer services are the main component of the local economy in tourist resorts. Over the past decade, employment in these activities increased across the country. In the Alpine region, tourist places with highest increase in jobs are clustered in South Tyrol and Trentino and in their vicinity (figure 27).

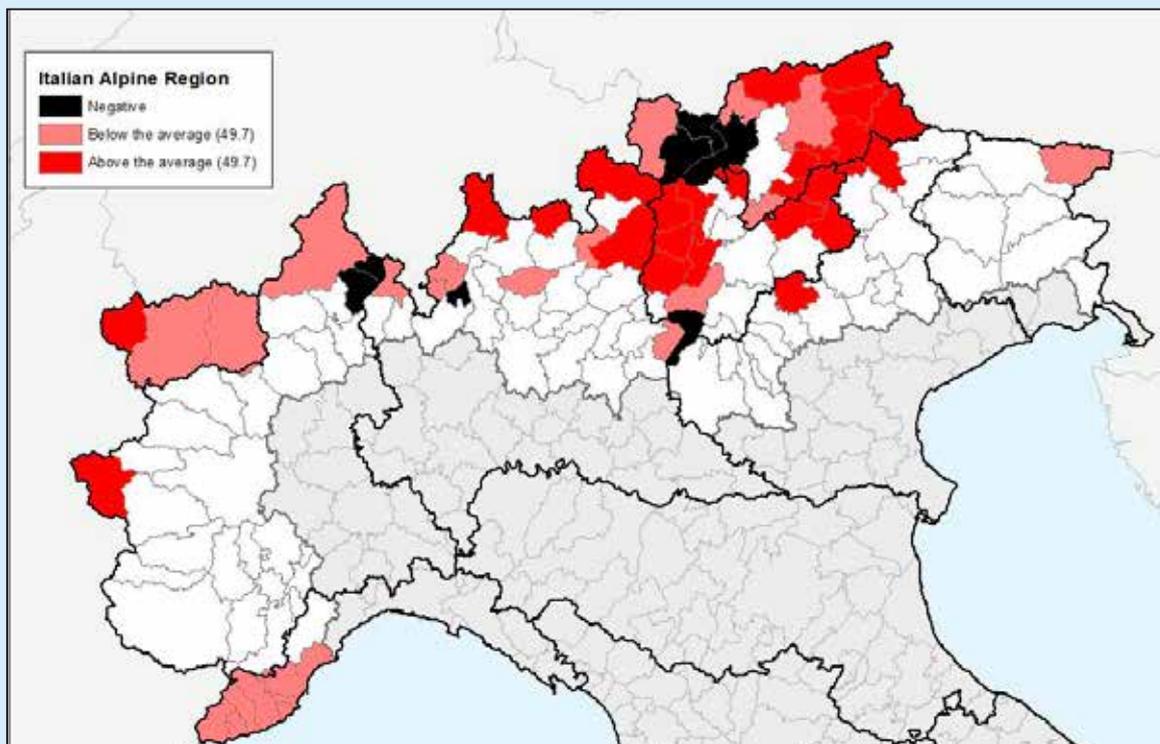


Figure 27: The Italian Alpine region: percentage changes in consumer services jobs by tourist resorts, 2001-2011.

However, there are some negative cases in the same area. Jobs were lost in a cluster of tourist sites (Merano, Naturno and Silandro) in the Vinschgau Valley (Val Venosta), the upper part of the Etsch (or Adige) River valley, in the western part of South Tyrol.

It is worth focusing on other tourist places that lost jobs, because they share the same location on the lakes: Verbania and Cannobio on the shore of Lake Maggiore in Piedmont; Bellagio located on Lake Como in Lombardy; Malcesine and Limone sul Garda located on the eastern (Veneto) and western shore (Lombardy) of Lake di Garda, respectively. The most dynamic tourist sites, i.e. those in South Tyrol and Trentino, are embedded in a social environment characterised by younger people compared to the other tourist places of the Alpine region (figure 28).

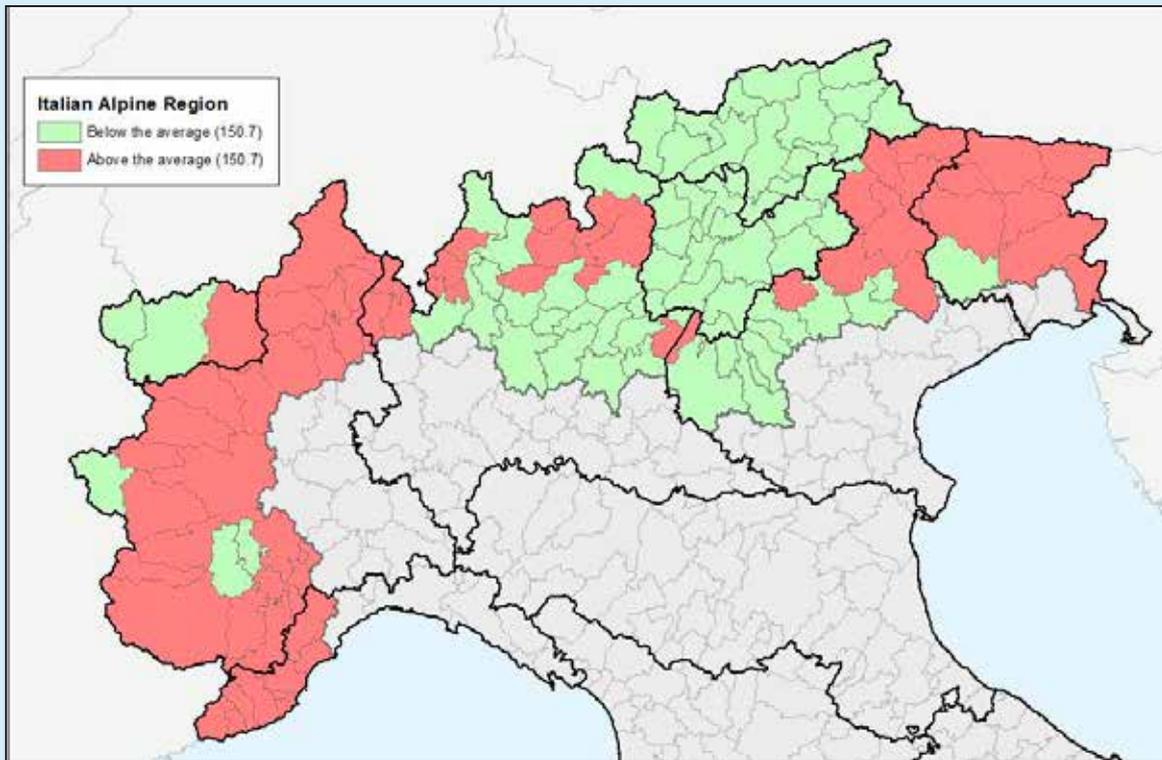


Figure 28: The Italian Alpine region: elderly ratio, 2011.

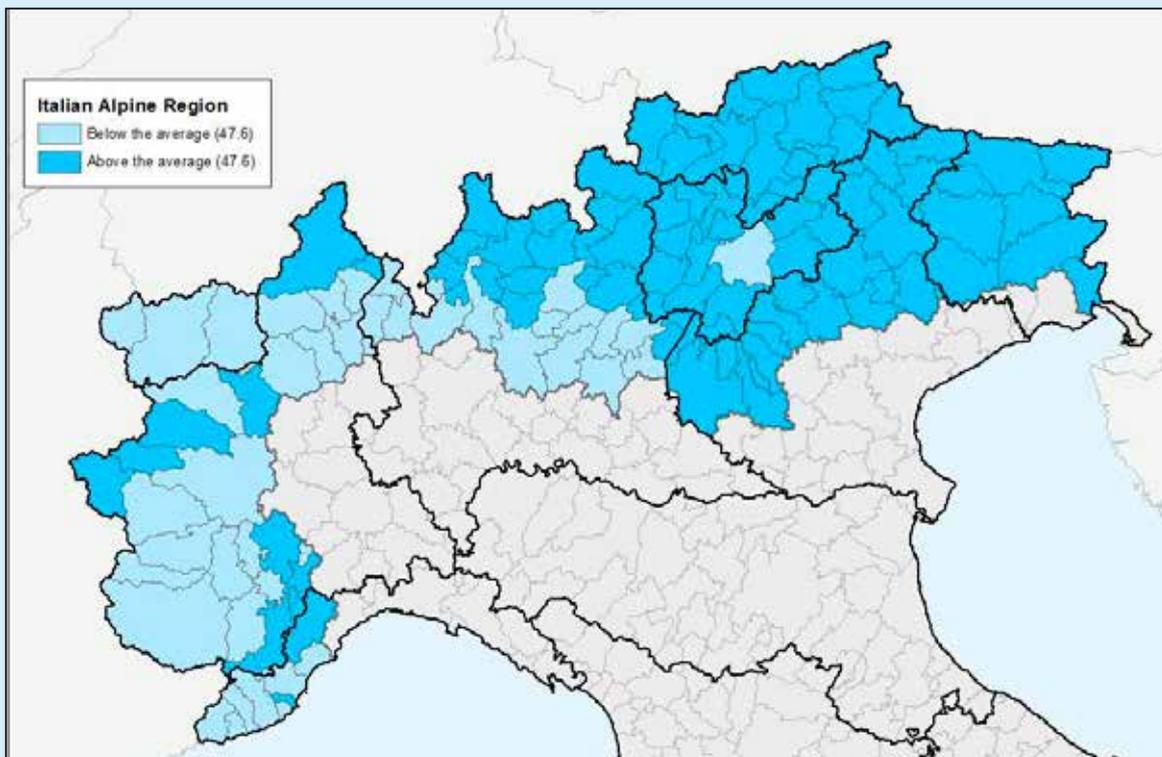


Figure 29: The Italian Alpine region: young people (25-34) with secondary education, 2011.

Local economies with an elderly ratio above average are mainly located both in the far west (Piedmont) and the far east (Friuli-Venezia Giulia and upper Veneto) of the Alpine region. Younger generations are more educated. The human capital to meet customer requirements is even more important in tourism than in manufacturing, because in these services the competitiveness of local economy is less supported by technological innovations and more by personal skills. Figure 29 shows the percentage of young people (25-34 years of age) with secondary education. The highest percentages correspond to the tourist resort mentioned above, although they also extend to other local economies, such as the eastern industrial economies of Veneto and Friuli-Venezia Giulia.

In Italy the unemployment rate is higher among educated young people. However, in the Alpine region the youth unemployment rate (25-34) is at 6.8% compared to 12.8% in Italy (figure 30).

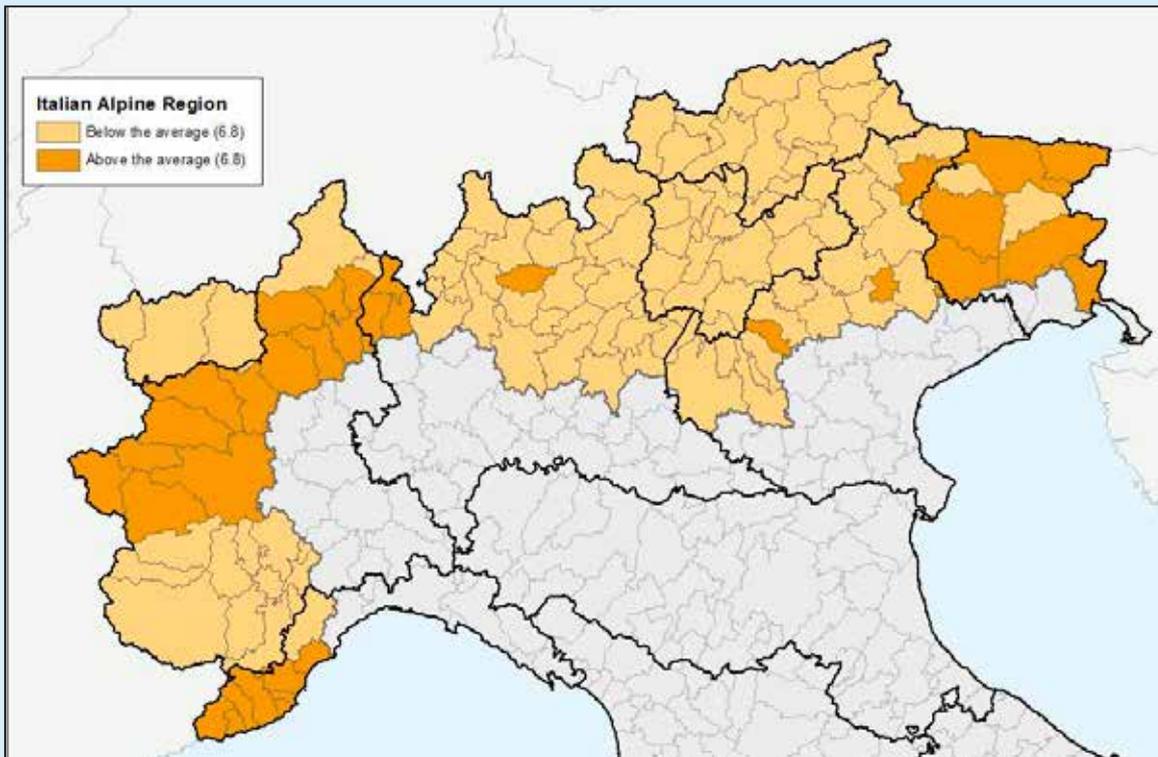


Figure 30: The Italian Alpine region: youth unemployment rate (25-34 years of age), 2011.

The low youth unemployment rate reflects greater opportunities that young people have in finding a job in the Alpine region. These opportunities can be found in local economies located in the core of the region rather than at the border. They are identified with the economic environments of tourist resorts and industrial districts.

The foreign resident population is higher in the region than in the rest of Italy: 97.5 vs. 72.3 per thousand inhabitants. Within the region, the highest incidence of foreigners is in the industrial districts, followed by the tourist resorts, cities and industrial hubs (figure 31). More generally, the presence of foreign residents is higher in the eastern local economies. This localisation underlines the west-east divide that separates Piedmont from the rest of the Alpine region.

The standard of living and job opportunities are better within the Alpine region than outside, as is confirmed by the pattern of daily flows of workers from residence to place of work. The 2011 pattern reveals that the region is highly self-contained. Daily worker flows from their residence to the place of work take place mainly within the region (84.5%). Workers who work outside the region (15.5%) live in Italy (83.0%) or abroad (17.0%). They work in Switzerland (99.1%), Slovenia and Austria (0.7%), France and the Principality of Monaco (0.2%).

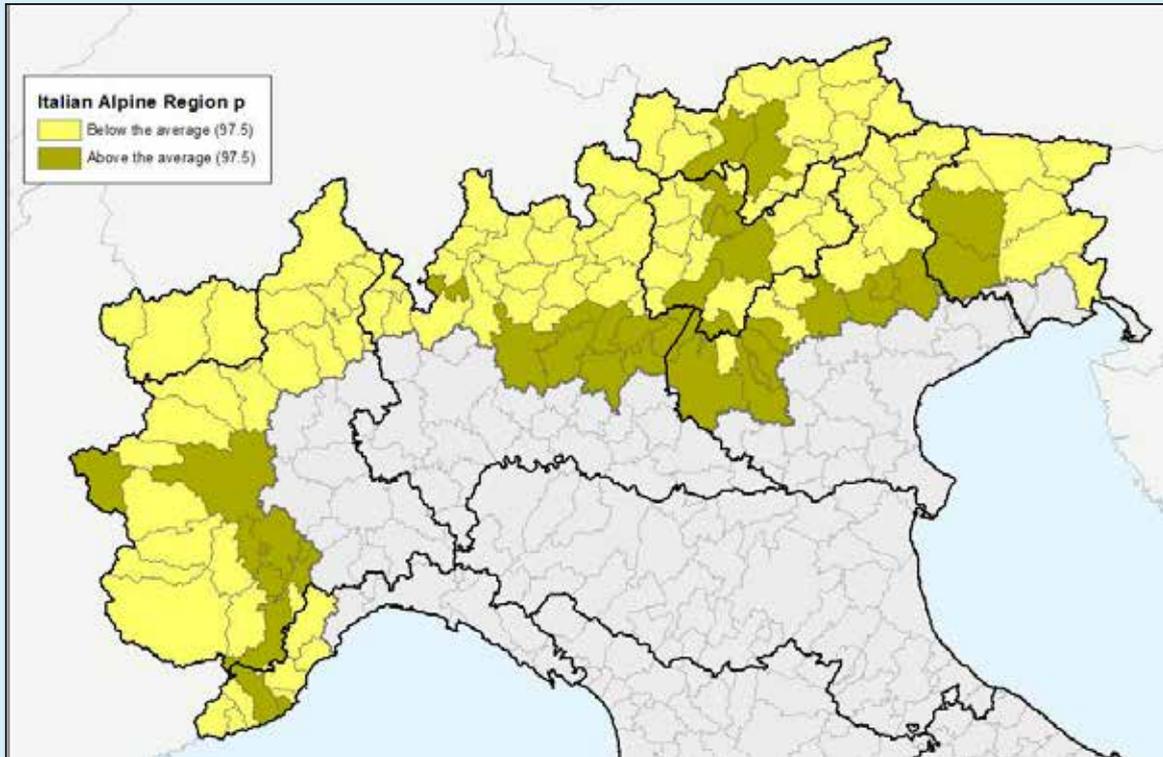


Figure 31: The Italian Alpine region: the foreign resident population, 2010.

## Benefitting from european studies to understand the alpine situation

Roger Milego (ETC-SIA and UAB),

Martin Price (Centre for Mountain Studies, Perth College, University of the Highlands and Islands)

and Elisa Ravazzoli (EURAC research)

In recent years, two major studies of Europe's mountains were undertaken by the European Environment Agency (2010) and as part of the GEOSPECS (Geographical Specificities and Development Potentials in Europe) project of the ESPON Programme (ESPON and University of Geneva, 2012). These studies have produced very detailed analyses of several variables. The availability of these analyses is key to the RSA5 as they provide datasets on key issues, often originating from outside the perimeter of the Alpine Convention, which may be relevant to Alpine demographic processes. These datasets can be compared with Alpine datasets in order to explore possible relationships.

We assumed that a number of variables considered in the EEA and GEOSPECS reports have positive or negative influences on, and/or are influenced by demographic processes: for instance, changes in land cover/use, urban sprawl, water availability, pollution, and transport infrastructures. The initial analysis of these variables led to the identification of a smaller number of them to be further explored to better understand possible relationships/interactions with demographic processes. The following maps and accompanying texts deal with those variables with meaningful connections with demographic processes. It should be noted, however, that the analyses below are qualitative in nature, as changes in municipal boundaries prevented any statistical analysis based on direct spatial comparisons.

### Urban Typology

In the GEOSPECS Project, the concept of Potential Urban Strategic Horizons (PUSH) was developed. This relates to the area within a 45-minute distance from the edge of urban centres (or Functional Urban Areas, FUA) with more than 100,000 inhabitants. The 45-minute distance is widely accepted as definition of the limit for daily commuting or access to urban

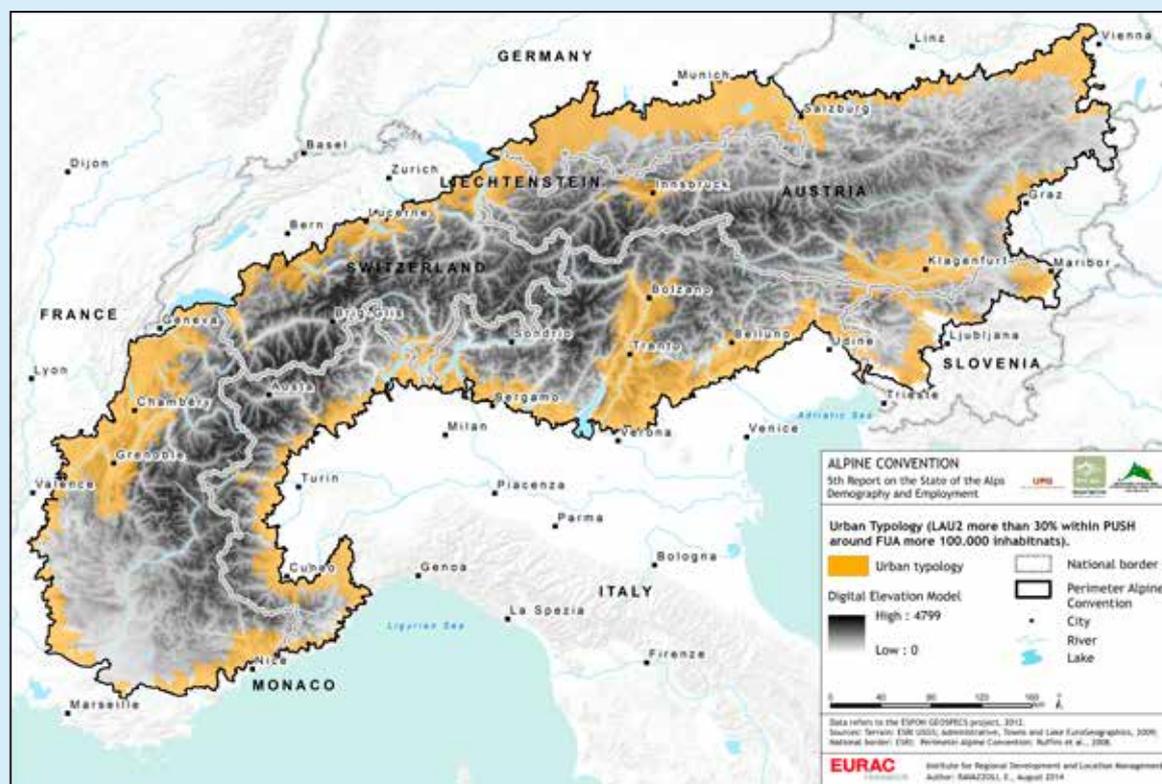


Figure 32: Urban typology.

centres, where a variety of employment opportunities and services is present. The threshold to include a municipality (i.e. Local Administrative Unit, LAU 2) in this urban typology was that at least 30% of its area belongs to a PUSH.

Topography is a key factor influencing the urban typology. As shown in the map in figure 32, the urban typology is primarily found at low altitudes and in relatively flat areas around the edge of the Alps, as well as north of Nice, in the basin of the Dray near Klagenfurt and along the Inn Valley around Innsbruck. In general, the only relatively steep and high area that is included is around Grenoble (France) and within the watershed of the Adige/Etsch in northern Italy.

Municipalities around nearly the entire Alpine Convention perimeter are included in the urban typology. In other words, nearly every municipality around the edges of the Alps has reasonable access to an urban area with at least 100,000 inhabitants, providing opportunities for employment and services, while people living in these areas can visit Alpine municipalities for recreation etc. However, the distance of these accessible communities from the Alpine Convention perimeter varies considerably. For instance, it is very limited in Austria, east of Salzburg, and west of Torino in Italy: less than 10 km. Around Chambéry and Grenoble (France) and south of Munich (Germany), the area is much bigger: up to 40 km. The map in figure 32 clearly shows the influence of urban areas in the Alps, particularly along the corridor including Bolzano/Bozen and Trento (Italy), around Klagenfurt (Austria) and, to a lesser extent, around Innsbruck (Austria).

### Urban Typology and Demographic Variables

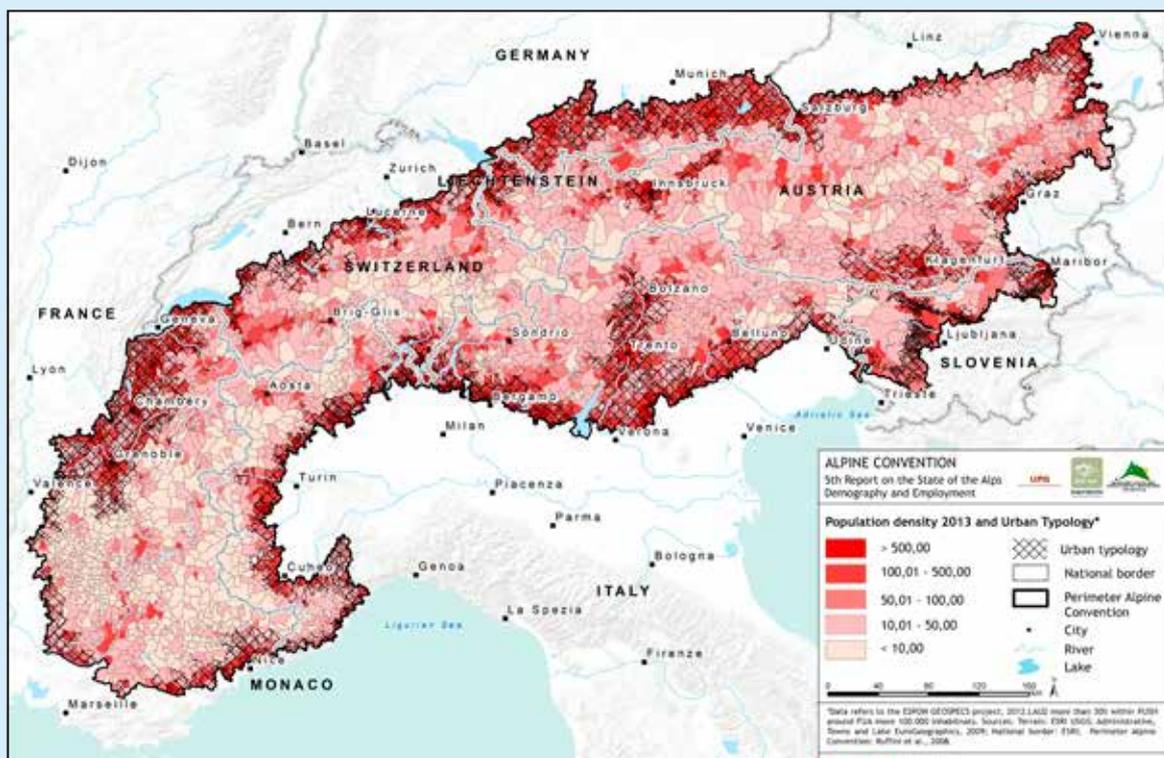


Figure 33: Population density and urban typology.

Stronger demographic and economic growth is often assumed to take place near urban areas, which provide employment opportunities to people living in nearby municipalities (e.g. in peri-urban areas). They are also sources of people who visit the mountains at weekends, and thus bring income. As can be seen in the map in figure 33, there is generally a very strong relationship between population density and the urban typology. In total, 49.7% of Alpine municipalities (3,508 out of 7,058), and a much larger proportion of the Alpine population are included in the urban typology. Tourist resorts or small towns are the relatively few municipalities that are not included in the urban typology with a density above 100 inhabitants/km<sup>2</sup>. The urban typology includes some municipalities with relatively low population densities (below 50 people/km<sup>2</sup>); these tend to be high in the mountains.

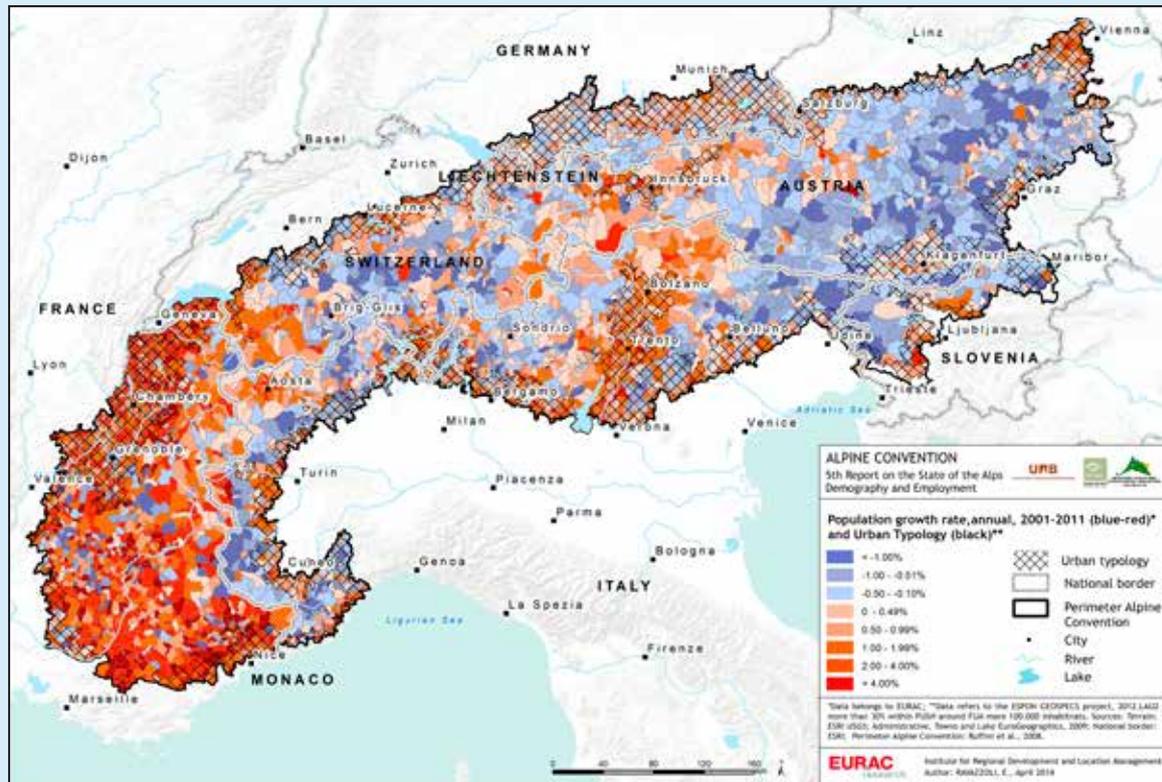


Figure 34: Population growth and urban typology.

Patterns are less clear with regard to population growth (map in figure 34). Nearly all municipalities in the French Alps are characterised by population growth, whether they are close to urban areas (including Geneva) or not. However, almost all municipalities with population loss are outside these urban-influenced areas. In other countries, population growth appears to be more likely in areas influenced by cities such as Belluno, Bergamo, Bolzano/Bozen, Trento, and Trieste (Italy), Innsbruck, Salzburg and Vienna (Austria) and, to some extent, Munich (Germany). However, around all these cities, a number of municipalities with population loss can also be found. This is even more true around cities such as Maribor (Slovenia), Klagenfurt (Austria) and Verona (Italy). In areas without an urban influence, there are also regions with clear population growth in the southwest corner of Switzerland, around Aosta and east of Bolzano/Bozen (Italy) and, to a lesser extent, west of Innsbruck (Austria).

### Access to Airports

Access to airports is often considered an important driving force for economic, and therefore also population growth. The GEOSPICES project collected data on European airports, broken down into two categories:

- at least 150,000 passengers per year;
- airline connections with more than 15,000 passengers per year.

The municipalities within a distance of 45 minutes from these airports were mapped. It should be noted, however, that the number of passengers/connections for two airports in the Alps – Aosta and Bolzano/Bozen – is below the thresholds, so that these airports are not shown on the resulting maps or considered in the analysis.

Municipalities with good access to an airport are generally around the Alpine perimeter and close to large cities (figure 35). The only important exceptions are municipalities with access to the airports of Innsbruck, Klagenfurt and Graz (Austria), Chambéry and Grenoble (France) and, to a certain extent, in the Ticino (Switzerland). However, 4,696 of the 7,058 Alpine municipalities (66.5%) – including a number of major towns and cities in Italy, as well as Brig-Glis in Switzerland – do not have good access to airports.

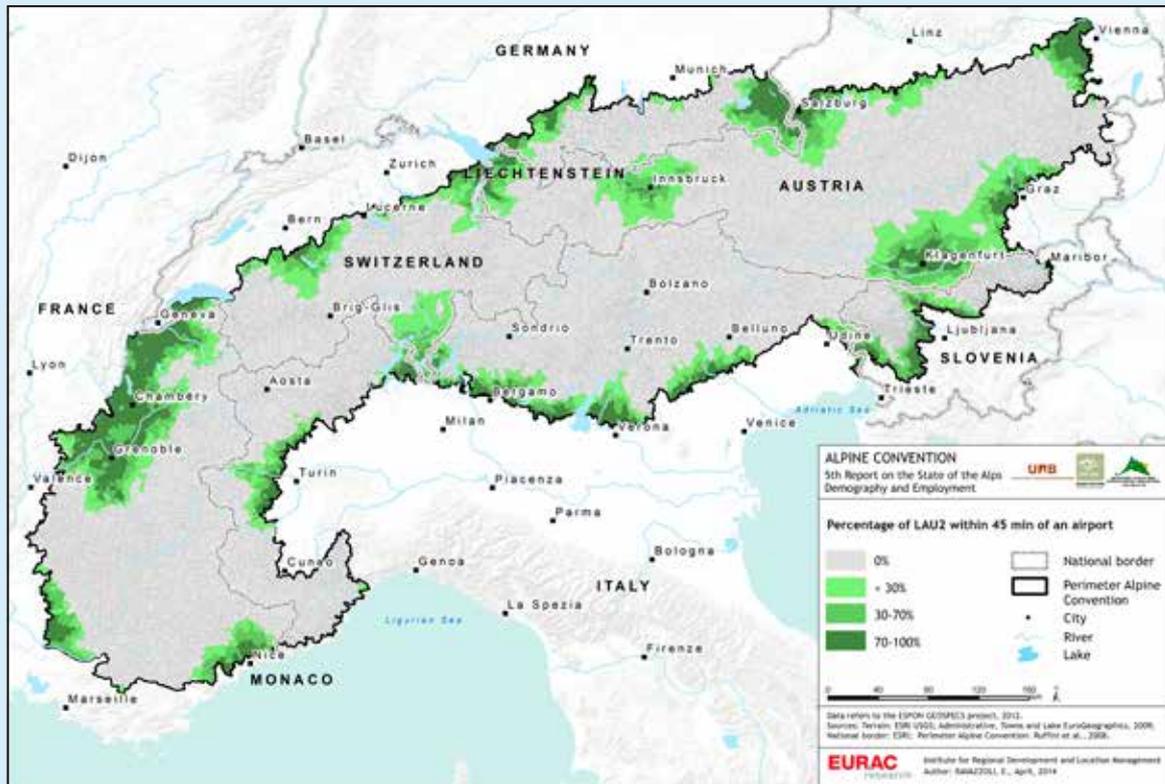


Figure 35: Percentage of LAU2 within 45 minutes of an airport (with at least 150,000 passengers per year).

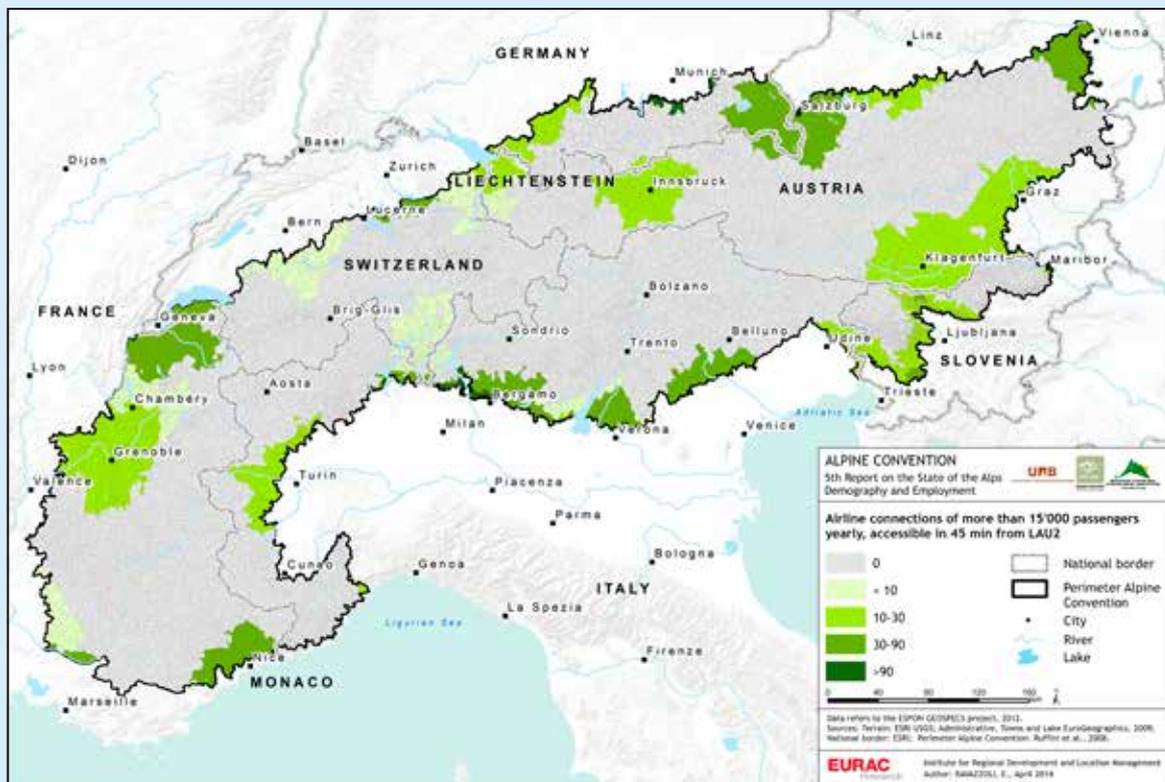


Figure 36: Airline connections with more than 15,000 passengers per year, accessible in 45 minutes from LAU2.

The map in figure 36 shows the same pattern of the previous map in spatial terms, but it differentiates airports with more connections – Nice (France), Geneva (Switzerland), Salzburg, Vienna (Austria), Milan, Venice, Verona (Italy) – from the others. The conclusion from these two maps is that, although it is often assumed that being close to an airport can stimulate demographic growth, areas with good access to airports show population increase and loss. Access to a large urban centre (>100,000) appears to be more important.

### Land Cover Changes, 1990-2000 and 2000-2006

Land cover has been mapped in subsequent Corine Land Cover (CLC) datasets for the EEA: 1990, 2000 and 2006. These datasets provide consistent classifications of land cover classes across Europe at a spatial resolution of 1 km<sup>2</sup>. Comparison of datasets from different years helps analyse land cover changes from one class to another. For this report, two general types of land cover change were considered: urban expansion and industrial growth, which can be assumed as being related to increasing population numbers and densities. In the relatively short time periods under consideration, changes affect relatively small areas within the Alps. Very few land cover changes occur in the high Alpine mountains. Consequently, three areas were investigated in more detail (maps in figures 37 and 38).

Some patterns emerge from the zooms:

- In the area around Grenoble (France), land cover changes in the first period included industrial development and urban expansion, while later there was only urban expansion.
- West and also north-east of Graz (Austria), land cover changes in the first period included industrial development and urban expansion, while later there was primarily industrial development. A similar pattern appears in the south-west of Vienna (Austria).
- An area with substantial urban expansion is located in the south-west of Innsbruck (Austria), especially in 1990-2000. This pattern is more discontinuous in the west and south throughout Austria into Switzerland, but it appears along major roads.

These preliminary conclusions need to be further investigated in order to more coherently understand the processes of land use change, which could then be compared to demographic changes in each area.

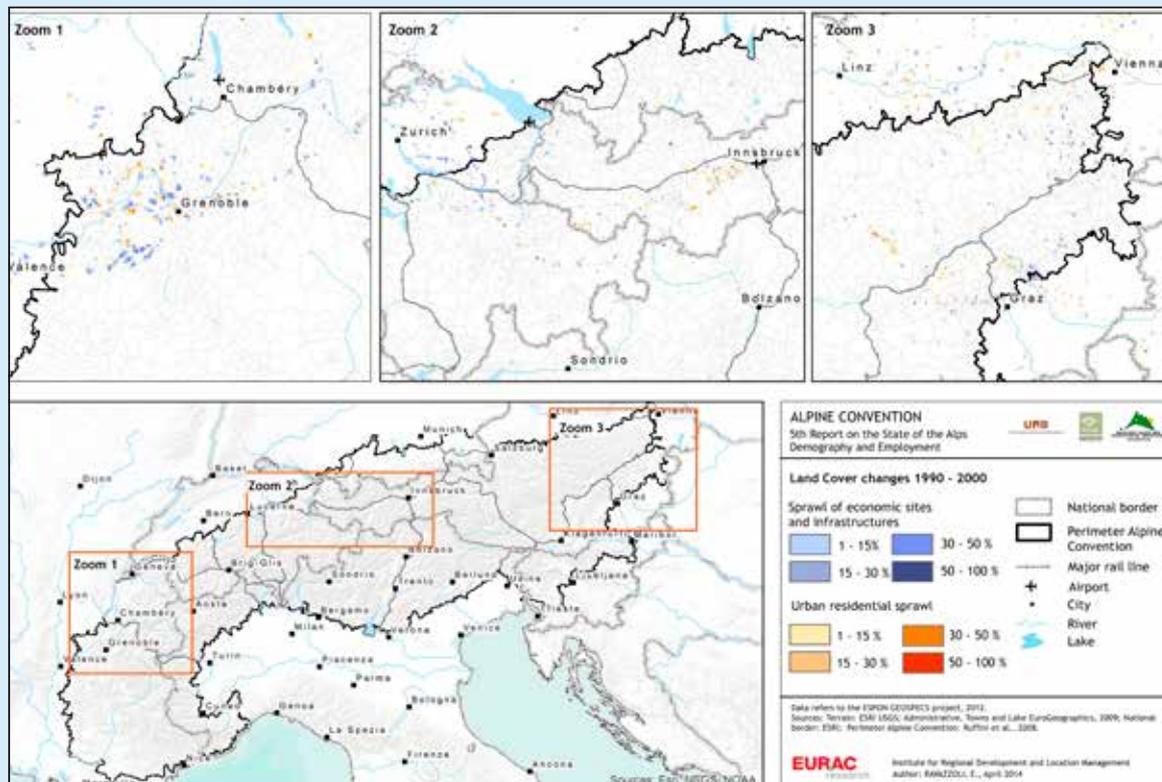


Figure 37: Land cover changes – Zoom 1.

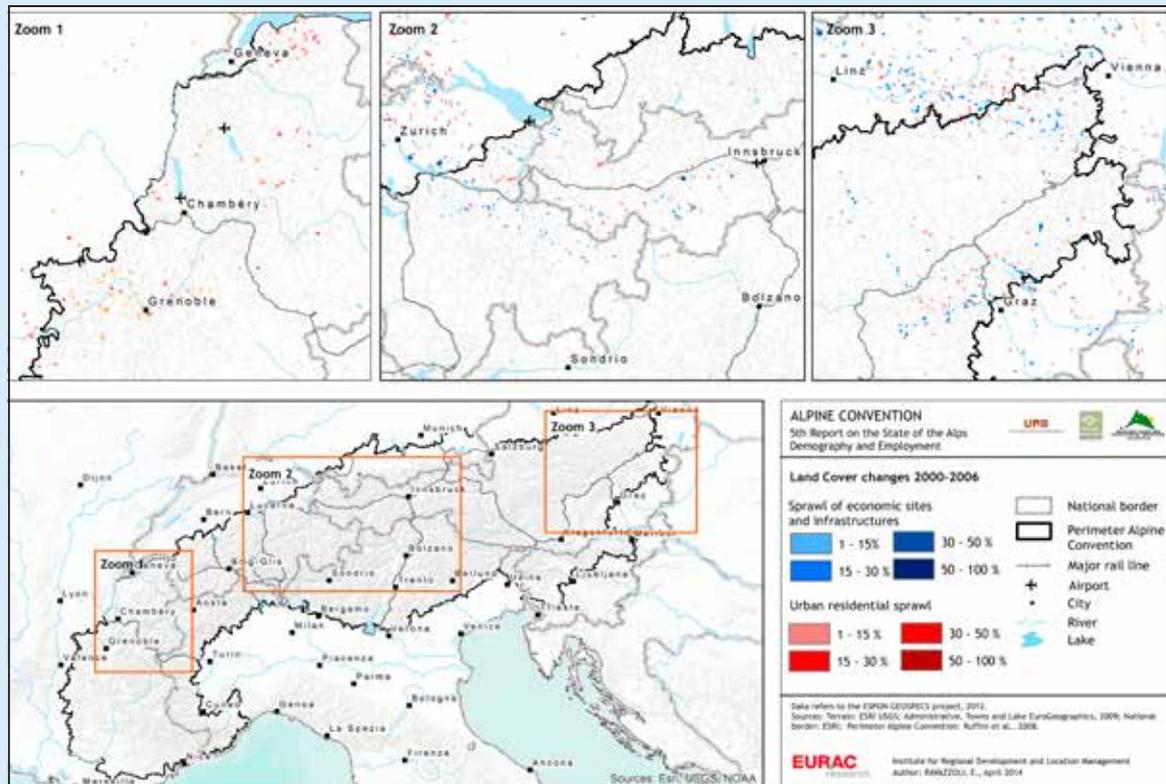


Figure 38: Land cover changes – Zoom 2.

## Good practices

### Food production in Soča valley (Slovenia, Northern Primorska region)

#### Issues:

- relaunch local/regional competitiveness;
- innovation as a driver of sustainable development to preserve culture and the population.

#### Type of measure:

- pilot action – private initiative.

#### Funding:

Private/business-driven.

#### Background:

Job availability is one of the most important factors to keep the population in rural/mountain areas. Agriculture is one option, provided there is enough added value resulting from higher product quality recognised on the market and from cooperation in the supply chain.

#### Implementation:

There is a long and widespread tradition of milk production in the Soča Valley with many small farms that supply the Planika dairy. In times of globalisation and mergers, Planika decided to keep its unique, traditional products and to offer farmers the highest possible value for their high-quality milk (the best in Slovenia). It is worth noting that the dairy is owned by a cooperative established by the farmers. It is a closed loop economy that benefits the farmers, maintains the landscape, respects tradition and offers the possibility to live and work in the valley. This case shows that niche or innovative business solutions can significantly affect other issues and sectors.

#### Indicators:

Market success of the products, brand recognition.

#### Transferability:

The approach of building a network/cooperative of farmers/SMEs to gain power on the market with a niche product can be easily transferred.

#### Link:

<http://www.mlekarna-planika.si/>

## Good practices

### Project CAPACities: Competitiveness of actions and policies for alpine cities (Transnational – Alpine Space Project)

#### Issues:

- relaunch local/regional competitiveness;
- innovation as a driver of sustainable development to preserve culture and the population.

#### Background, implementation and pilot activities:

The CAPACities project, funded within the framework of the Alpine Space Programme, is focused on small urban centres in the Alpine area and on the mountains around them.

In the framework of this project, the 10 partners worked on 16 pilot projects. In the pilot areas, and in the entire Alps, demographic growth rates are very diverse. Other indicators were developed in the project, such as the elderly index (which highlights clearer trends) and the size of municipalities (confirming greater population

distribution along the Alpine foothills and in the main valleys).

The Piedmont region defined two pilot projects, aiming at building sustainable development scenarios rooted in locally available resources and traditional knowledge, with an active involvement of public and private local stakeholders, that dealt dealing with the negative demographic trends.

The pilot areas for the development of the projects were the Ossola Valley (in the northern part of the region) and Val Varaita (in the south-western part of Piedmont). In both cases, the project development was based on three different phases:

- 1) analysis of local potential (also through SWOT analyses), needs and projects by using tools like interviews, workshops, etc. in order to try to involve local stakeholders;
- 2) organisation of a local conference to discuss possible developments with the main stakeholders;
- 3) definition of a shared strategic document.

In the Varaita Valley the economy is traditionally specialised in the timber economy, which is now facing a serious crisis. The hydroelectric potential of the valley is not remarkable, while timber could trigger multi-scale

economic opportunities also in the energy sector and in the building sector and in handicraft. Wood could be an important resource also for land maintenance.

In the Ossola Valley, the focus was on traditional buildings and on the supply of building materials, in particular in the mountain-side villages around Domodossola (generally very close - by car - to the main centre of the valley).

Recovering abandoned buildings could be an opportunity to contain soil consumption in the valley floor and to repopulate mountain slopes.

However, recovering processes should:

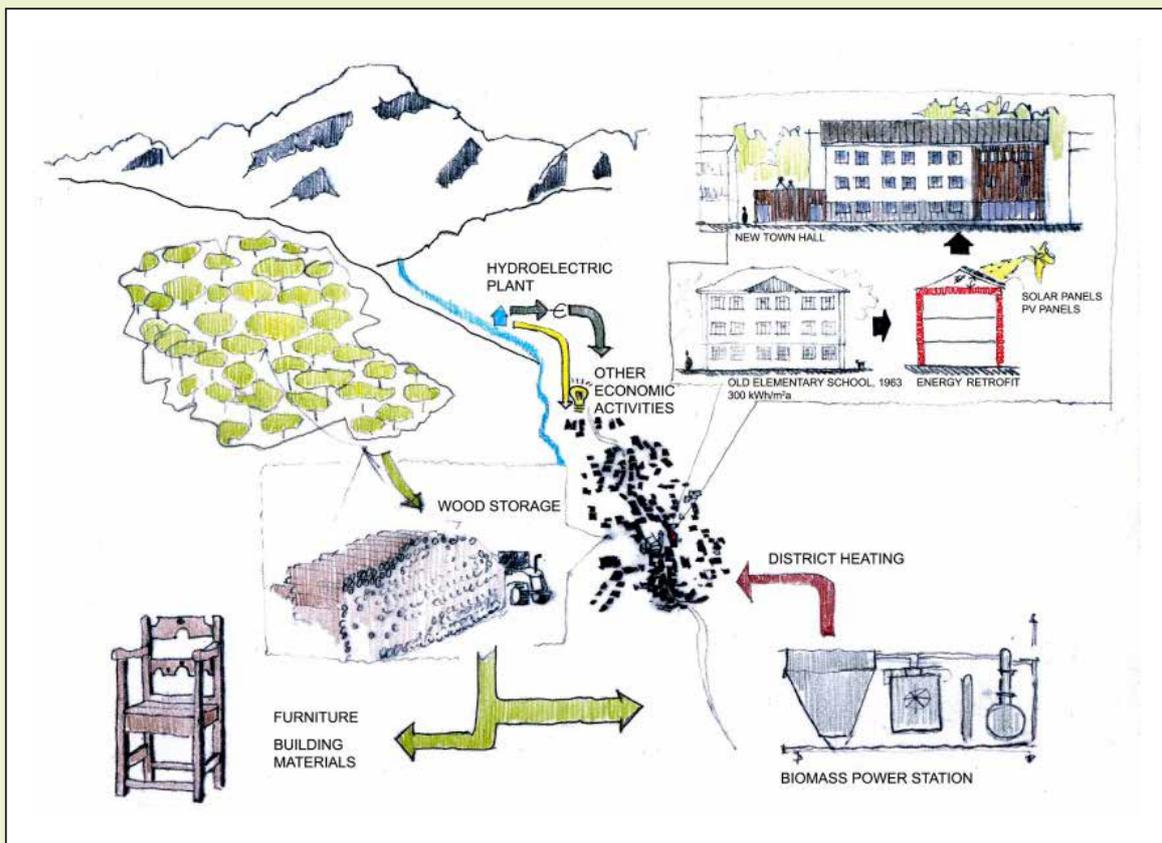
- be based on the use of as many locally available materials as possible (a short supply chain favouring local economy and entrepreneurs);
- involve the whole building sector and other local stakeholders;

- be centred on village structures, not only on single buildings.

The main outputs of the pilot projects were as follows:

- definition of a shared strategic document on local development (also shared by the Province of Verbano-Cusio-Ossola in the second project);
- definition of guidelines for the use of renewable resources in energy production and to reduce energy consumption in Alpine areas;
- definition of guidelines to revitalise mountain-side villages, with suggestions/addresses regarding architectural, social, and economic aspects related to this theme;
- testing the above-mentioned guidelines in the pilot project areas.

**Link:** [www.capacities-Alpinespace.eu](http://www.capacities-Alpinespace.eu)



## Good practices

### Kraft. Das murtal – strengthening “the Murtal” region (Austria, The Murtal Valley)

#### Issues:

- relaunch local/regional competitiveness;
- innovation as a driver of sustainable development to preserve culture and the population;
- create qualified employment to counter brain drain;
- implement educational opportunities for young people in the mountains (e.g. primary schools in sparsely populated areas, professional schools to teach traditional activities, universities) to avoid emigration and brain drain;
- increase the knowledge of local trends and work out a strategy to develop the area and maintain existing services.

#### Type of measure:

- pilot action (project: Kraft. Das Murtal: establishing an umbrella brand);
- political measure: 12 subprojects, see below.

#### Funding:

Initiated by 3 LEADER regions; federal and provincial funding agencies, EU and central regional stakeholders and interest groups. Wherewithal from enterprises.

#### Background:

Since 2008 a remarkable cooperation network of manufacturing industries (steel and wood processing, engineering, construction) and service providers (commodities, consumer goods and services) has been built up. Based on a strategy and milestones plan worked out by 10 regional stakeholders, more than 60 companies have joined the cooperation network. As a consequence, value creation, jobs at all levels (apprenticeship, skilled workers, university graduates, experienced managers) and people's income could be raised and will further rise. This makes the region attractive for companies setting up their business here in the future.

#### Implementation:

12 subprojects:

Redefining the region's image:

- Communications strategy: Kraft-newsletter, website, facebook, press advertising, Kraft-logos.
- Image analysis.
- (Playful) work discovery: This project is aimed

at very young children from local kindergartens and schools: They play young researchers who investigate the companies with their teachers and then present their impressions in front of their parents and friends.

- Open day: The event helped many people to know the most important employers (hi-tech companies) in the region.

The human factor:

- Attractive jobs – attractive employers
- Regional apprenticeship strategy: campaign to inform school leavers about 1,800 available apprenticeships and related opportunities (earning good money, job security, career progression)
- Regional training schemes for the manufacturing and service sectors

Business integration:

- Regional development plan for manufacturing & business activities;
- Regional networks of excellence;
- Regional network flows: fewer products and services from outside the region.

Sustainability:

- Businesses take proactive and visible responsibility for the region: checking the corporate social responsibility of 12 companies led to various plans, among which a common photovoltaic power plant...

Industrial / knowledge tourism:

- Strengthen the interplay between tourism service providers and businesses to foster industrial and knowledge tourism: people incl. school children visit the region's leading companies to know possible employers.
- Organisation of a 100 km “Kraft” race.

#### Indicators:

- Number of jobs at different levels
- Number of apprentices in the region
- Total sales in €
- Export share of the companies
- Percentage of value creation in the region.

#### Transferability:

Embedding all people in the region – from kindergarten age onwards – in the regional network of the industry, economy and services sector. Creating and maintaining different jobs for young people with outstanding prospects for the future and communicate this to people. Creation of new and innovative products will lead to successfully enter new markets.

#### Link:

[www.kraft.dasmurtal.at](http://www.kraft.dasmurtal.at)

## Good practices

### Optical fibres in the municipality of Budoia (Italy, Friuli Venezia Giulia, Budoia – Pordenone)

#### Issues:

- innovation as a driver of sustainable development to preserve culture and the population;
- implement educational opportunities for young people in the mountains (e.g. primary schools in sparsely populated areas, professional schools to teach traditional activities, universities) to avoid emigration and brain drain;
- innovative solutions to provide services in sparsely populated areas;
- increase the knowledge of local trends and work out a strategy to develop the area and maintain existing services.

#### Type of measure:

- pilot action;
- political measure (2011/2012 Municipality of Budoia, NCS Group).

#### Funding:

Private investment with a public-private partnership.

#### Background:

The Municipality of Budoia is located along the Alpine foothills, not far from the urban area of Pordenone; until 2012, Budoia did not have fast internet connections,

making the territory unable to host public and private services that needed it.

#### Implementation:

Thanks to a public-private partnership between the Municipality of Budoia and a private company, the entire municipal territory has been wired up; costs were borne by the private partner, that used the street lighting public network for the installation. The agreement includes free connections for the municipal building and free of charge Wi-Fi areas in the municipal area. Budoia is the first Italian community entirely wired up with FTTH (Fiber To The Home) optical fibers.

#### Indicators:

All public buildings are now wired up; schools use interactive multimedia boards. The library is equipped with multimedia devices and an ICT room is used by students and the elderly for ICT training.

New services for tourists are accessible thanks to the public Wi-Fi areas and safety has been implemented through a video surveillance system linked to the fiber network.

The new urban plan takes into account the new services as well the new needs, including spaces for the workers of this new ICT-related economy.

#### Transferability:

Other mountain towns (e.g. Polcenigo, Caneva) have taken the Budoia project as an example and are using it as a model.

#### Link:

<http://www.comune.budoia.pn.it/index.aspx>

## National contributions

### AUSTRIA

Austrian labour market data originate from administrative sources. The indicators are the inactivity rate, the employment rate and the unemployment rate. Results were broken down by gender and the age group 15 to 24 is shown separately.

	Total			Male			Female		
	Alpine area	Non-alpine area	Austria total	Alpine area	Non-alpine area	Austria total	Alpine area	Non-alpine area	Austria total
<b>Age 15-64</b>									
Inactivity rate (%)	25.6	26.2	25.9	20.5	21.7	21.3	30.6	30.6	30.6
Employment rate (%)	70.4	69.2	69.6	75.7	73.3	74.3	65.1	65.0	65.0
Unemployment rate (%)	5.4	6.3	6.0	4.7	6.3	5.7	6.3	6.3	6.3
<b>Age 15-24</b>									
Inactivity rate (%)	37.7	41.3	39.9	32.8	37.2	35.4	42.9	45.5	44.5
Employment rate (%)	57.5	53.2	54.9	62.8	57.1	59.3	51.8	49.2	50.2
Unemployment rate (%)	7.8	9.4	8.7	6.6	9.1	8.1	9.2	9.7	9.5

Table 25: Labour market indicators for Austria (2011).

Looking at the three indicators for the Alpine and non-Alpine regions, in 2011 there were only marginal differences in the inactivity rate (25.6% Alpine / 26.2% non-Alpine), while the employment rate (70.4% Alpine / 69.2% non-Alpine) was higher in the Alpine area, and as a consequence, the unemployment rate was moderately lower than in the non-Alpine area (5.4% Alpine / 6.3% non-Alpine).

Looking at gender differences in employment, males clearly seem to have enjoy working conditions in the Alpine regions than females. While male employment rate in the Alpine regions is higher than in the non-Alpine regions (75.7% / 73.3%), the unemployment rate is lower (4.7% / 6.3%). A closer look at female employment shows that for women aged 15 to 64 there are almost no differences between Alpine and non-Alpine regions for all the three indicators. When looking at young women aged 15 to 24, the inactivity rate (42.9% / 45.5%) and the unemployment rate (9.2% / 9.7%) are lower and the employment rate is higher (51.8% / 49.2%) in the Alpine regions than in the non-Alpine regions. However, in general both indicators – the employment and the unemployment rate – are better for men.

Considering unemployment, it seems that men aged 15 to 24 have more job opportunities when living in an Alpine region: while the unemployment rate for men of this age in non-Alpine regions is 9.1%, the unemployment rate of the 15 to 24-year-old men in Alpine regions is only 6.6%. There are significant regional differences within Austria's Alpine territory concerning the employment and unemployment rates. In 2011, the employment rate was particularly high in the north-west of Vorarlberg (e.g. in Bregenzerwald), along the Inn and Salzach Valleys and around the federal capitals of Innsbruck and Salzburg in the federal territories of Tyrol and Salzburg respectively. Furthermore, the employment rate was high in several parts of the Upper and Lower Austria and especially in the eastern part of Alpine Styria.

In 2011 the unemployment rate was remarkably high in the border area of Tyrol and Vorarlberg and in an area reaching from the northern part of Tyrol to East Tyrol and the south of the federal territory of Salzburg and to the western parts of Carinthia and Styria.

## FRANCE

As already mentioned, the employment rate is significantly higher in the Alps than in other French regions, due to the economically favourable situation of the area and, more specifically, to the presence of jobs in the tourist sector that are attractive to young people with different education levels (sport, cultural and social animation). Those jobs are often part-time and offer low wages. There are also a major academic town attracting students (Grenoble) and many productive areas, both in the towns (service activities) and in some Alpine valleys (industry).

	Alps		France	
	2010	1999	2010	1999
Inactivity rate (%)	25.9	29.8	27.8	30.7
Employment rate (%)	67.2	62.4	63.8	60.2
Unemployment rate (%)	9.3	10.8	11.6	12.9
Long-term unemployment rate (%)	32.5	n.a.	37.7	n.a.
Young unemployment rate (%)	15.6	n.a.	17.0	n.a.
Temporary workers (%)	1.9	1.0	2.3	1.1
Part-time/full time employed (%)	17.8	18.5	15.8	8.9
Employees/self employed (%)	8.1	n.a.	6.3	n.a.

Table 26: Labour market indicators for France (1999-2010).

Those specific economic features explain why the inactivity rate is 2 points lower than the national average, the employment rate 3.4 points higher and the unemployment rate 2.3 points lower. For the same reasons, youth unemployment and long-term unemployment are both low (1.4 and 5 points lower than the national average), and part-time employment is high: 2 points over the national average. The percentage of temporary workers was low at the time of the latest available survey (2010), when economic industrial activities were slowly recovering from the 2008-2009 industrial crisis. It has probably risen since. Self-employment is higher than the average due to rural and tourist activities in the Alpine valleys.

The economic structure is surprisingly similar to the domestic average: around 2% of the jobs belong to agriculture, 14% to industry, 8% to homebuilding and public works, 45% to trade, transport and services, 30% to administration, social services, education and health. This again is the result of the existence of diverse areas in the French Alps. In the department des Hautes-Alpes, agriculture, while diminishing, still accounts for almost 5% of total employment, twice the Alpine average, while industry is under 6%, 8 points less than the Alpine average, while trade, transport and business are at 43% (2 points less). The department offers more jobs in the administration, health and social services: i.e. 38%. In the department de Haute-Savoie, industry accounts for 17% of the employment, while public administration, health and social services only for 27%.

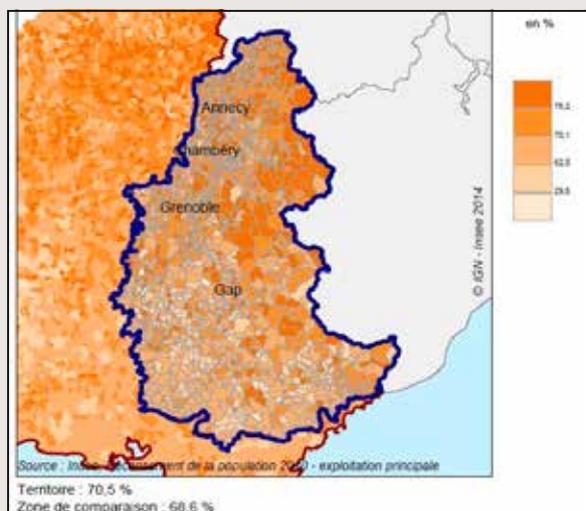


Figure 39: Women employment rate in the French Alps.

In general, the French Alps have gained 156,000 jobs in 10 years, between 1999 and 2010 (+ 17%). During the same period, agriculture lost 4,000 jobs, industry 26,000, but construction and public works created 25,000 jobs, trade, transport and services 96,000 and administration, health and social services 65,000.

	Alps			France	
	2010	1999	Variation 1999-2010	2010	1999
Total employment	1,077,797	921,578	156,219	25,718,171	22,800,731
Agriculture	25,005	29,138	-4,133	753,929	909,021
Manufacturing	150,487	176,772	-26,285	3,575,684	4,091,040
Construction	87,280	62,496	24,784	1,779,468	1,351,421
Trade, transportation and services	487,543	391,003	96,540	11,718,282	9,820,019
Public administration, education, health, social action	327,482	262,169	65,313	7,890,808	6,629,230
% Agriculture	2.3	3.2		2.9	4.0
% Manufacturing	14.0	19.2		13.9	17.9
% Construction	8.1	6.8		6.9	5.9
% Trade, transportation and services	45.2	42.4		45.6	43.1
% Public administration, education, health, social action	30.4	28.4		30.7	29.1

Table 27: Employment per NACE sectors in France, absolute values and percentages, 1999-2010.

Agriculture represents 2% of all the jobs, but takes 30% of the land. It is mainly breeding (cattle, sheep), however also milk, vegetable and fruit production play an important role, especially in the south and west of the Alpine Convention perimeter (department de la Drôme, Alpes de Haute Provence).

The Alpine industrial companies face the same challenges of the rest of the French industry, which has been steadily losing jobs for the last 12 years. The situation, however, is worse in some sectors because of geographic isolation and transport costs, and sometimes because of structural problems: industrial companies in the French Alps are mainly small, heavily dependent on large contractors and very reactive to new trends in international trade. The availability of hydropower is not really a strong advantage any more. Many companies suffered from the 2008-2009 crisis, and their small size inhibits their ability to look for new export markets. Despite these difficulties, many industrial firms have progressed significantly recently on niche products in a large variety of industrial sectors.

Population growth, a relatively high income level and a dynamic tourist industry generate strong demand for trade, transport, social services, housing and maintenance, culture, social and health services, administration, and so on. This explains why these sectors have created 180,000 jobs in the last ten years, and will continue to do so in the near future. In the northern part, the presence of Grenoble and, just outside, Geneva, means opportunities to develop industry and business services, especially in the knowledge economy.

Despite the challenges faced by the agricultural and industrial sectors, we can expect the economic situation of the French Alps to continue to be favourable in the near future, generating constant demographic growth. This in turn will mean environmental constraints that will have to be forecast and treated.

Decrease in agriculture and industry, growth of service employment in urban areas, growth of the female activity rate, lead to a spectacular change in the social setup of the French Alps. Among these changes, the commuting rate, from home to work,

has dramatically increased: in 1999, 40% of the population worked in their city (LAU 2) of residence. This rate decreased to 34% in 2010 (29% in the department de Haute Savoie, bordering Geneva). 13 % of the population work outside their department of residence, in France or in another country (21% in Haute-Savoie). Commuting, in a mountain environment, generates significant transport issues (as can be seen, every morning, on the motorways from France to Geneva). This suburban population live in the country and work, for the vast majority, in the city. They ask for services, trade and living conditions similar to the urban population - including high-speed internet access, healthcare and education services, etc.

## GERMANY

The data for this focus on the German labour market come from public databases and are available at NUTS 3 (district and urban district) level. Even though this geographical level of analysis is not as detailed as the municipal one, NUTS 3 data help compare district figures with the overall figures for the State of Bavaria, for Germany and for the Alps.

Three main indicators have been taken into consideration for this national focus: the inactivity rate, the employment rate and the unemployment rate. The selection of these indicators is motivated by the need to obtain information that, although collected at a different geographical level, can compare with those concerning the other Alpine countries.

In the German Alpine districts, the overall inactivity rate (2011 census) is lower than the German rate (20.7%) and in line with the Bavarian rate (18.7%). At district level, only the district of Garmisch-Partenkirchen (19.5%) has higher inactivity rates than Bavaria, possibly due, among other factors, to the presence in this district of a higher rate of elderly people, more likely to retire.

Taking into consideration the Alpine urban districts, they tend to show higher inactivity rates than the Alpine rural districts. The urban districts of Kaufbeuren and Kempten actually have higher inactivity rates than the average Bavarian rate (19.9% and 19.7%, respectively). Despite some homogeneity, clear Alpine-related specific elements in inactivity rates cannot be highlighted in the German Alps; they seem more linked to the specific district and to national situation of the labour market.

Regarding employment rates, the Alpine German districts show values that are in line or higher than the Bavarian employment rate (78.9%). The only exception is the district of Garmisch-Partenkirchen, which shows a slightly lower employment rate than the overall Bavarian rate (78.6%). The three urban districts of Rosenheim, Kempten and Kaufbeuren also show slightly lower employment rates than the average employment rate for Bavaria. However, all the German Alpine urban and non-urban districts have employment rates above the German average (75.5%).

The last indicator analysed in this focus on the labour market is the unemployment rate, which is complementary to the employment rate shown above. The German Alpine districts, with values that range from 2% of Miesbach, Lindau and Ostallgäu to 2.5% of Bad Tölz-Wolfratshausen and Traunstein, have unemployment rates in line with the Bavarian average (2.9%) and considerably and homogeneously lower than the other Alpine countries and the German national average (4.7%). Notable exceptions are the three urban districts (*Kreisfreie Städte*), whose values are closer to the German average: Rosenheim (4.1%), Kaufbeuren (4.4%) and Kempten (4.0%).

The fact that the averages are in line with the Bavarian rates and are different from the other Alpine countries suggests that the unemployment rate is not mainly determined by the Alpine specificity, i.e. the fact that a district is located in the Alps, but it is rather linked to the specific local and national socio-economic and labour market situation. A general conclusion drawn from the analysis of the indicators and from the comparison with the other Alpine countries is that the German Alpine labour market trends are more influenced by the overall national context than by the Alpine specificity.

## ITALY

The situation of the Italian labour market has recently suffered from the strong and abrupt changes caused by the crisis that hit the world economy. Italy, unlike other contexts, particularly in Europe, continues to show a critical situation. In this far from encouraging scenario, trends in the Alpine economy are very similar to those of the entire national territory although they are much less worrying. The indicators of the labour market, which we will introduce,

draw a picture of Alpine areas that needs to be investigated and interpreted in the light of the special features of each district or each valley.

The following figures come from the Labour Force Survey, which is a sample survey harmonised in Europe. The Alpine region has been divided into two areas: the western Alps which includes the Alpine municipalities belonging to the regions of Piedmont, Aosta Valley, Lombardy and Liguria, while the eastern Alps include the municipalities of the autonomous provinces of Bolzano/Bozen and Trento and of the regions of Veneto and Friuli-Venezia Giulia. The years 2007, 2010 and 2013 were taken into account in order to get a meaningful picture of the development of the labour market in recent times, which describes the situation of the labour market before, during and after the crisis, although, particularly in Italy, it seems still far from over.

In 2013, the employment rate for people aged 15-64 was still the lowest for the whole period (63.3% in the western Alps, 65.4% in the eastern Alps), and lost about 2 percentage points in both areas compared to 2007. In the rest of Italy, the loss is even greater (more than 3% from 58.7% to 55.6%) especially when compared to lower values than in the Alps. This downturn had a different impact on men and women: while the former were heavily affected, with employment losses (between 2007 and 2013, the employment rate fell from 75.3% to 71.1% in the western Alps, from 76.3% to 73.3% in the eastern Alps), the latter remained largely unchanged in the period or showed slight fluctuations. The picture in the Alps is in line with the entire national context, where employment levels are, however, much lower, especially for women, with rate differences far above 10 percentage points.

Employment rate (people aged 15-64)	Total			Males			Females		
	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
2007	65.2	67.3	58.7	75.3	76.3	70.7	54.8	58.0	46.6
2010	64.0	66.3	56.9	73.4	74.2	67.7	54.1	58.0	46.1
2013	63.3	65.4	55.6	71.1	73.3	64.8	55.2	57.4	46.5

Table 28: Employment rate in Italy and in the Italian Alps, 2007-2013.

The sharp decline in labour demand is associated with an increase in supply that cannot find employment. The unemployment rate, which before the crisis was around 3% in both Alpine areas and which was extremely low, sharply increased with the recession and in 2013 amounted to 8,6% in the western Alps and to 6,7% in the eastern Alps. The situation of the Alpine areas is better than the national context where the unemployment rate, in 2013, rose to 12,2%. Unemployment shows a very different gender profile compared to employment, also locally. Women continue to hold large shares of those who are seeking employment, but the crisis significantly contributed to reduce the gap with their male counterparts. In Italy between 2007 and 2013 the difference between women and men in terms of unemployment rate fell by 3 percentage points to about 1,5. In the western Alps the gender gap was practically cancelled with the recession and in 2013 the unemployment rate for women and men was substantially identical (8,6 to 8,5%). In the eastern part the crisis did not cause any significant change in the distribution between the sexes and affected rates growth in the same way.

Fluctuations in the labour market do not seem to affect the inactive part of the population and even if inputs and outputs between the two Alpine areas are very relevant the overall size of the two groups does not seem to significantly change. The inactivity rate for people aged 15-64 in all geographical areas slightly decreased, more in the western Alps (32,5% in 2007 and 2010 and 30,7% in 2013) than in the eastern Alps (from 30,8% in 2007 to 29,8% in 2013). Inactivity characterises the Alps less heavily than the rest of Italy, where the 2013 rate amounted to 36,5% and affected women much more than men (almost twice as much).

Unemployment rate (people aged 15-64)	Total			Males			Females		
	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
2007	3.4	2.8	6.1	2.3	1.9	4.9	4.8	3.9	7.9
2010	5.2	4.3	8.4	4.6	3.5	7.6	6.2	5.3	9.7
2013	8.6	6.7	12.2	8.6	5.9	11.5	8.5	7.6	13.1

Table 29: Unemployment rate in Italy, 2007-2013.

With this downturn, the male inactivity rate remained almost unchanged in the Alps and suffered a slight increase in Italy, while for women, between 2007 and 2013, it decreased by about 3 percentage points nationally and, somewhat similarly, also in all Alpine municipalities. The gap between the proportion of inactivity in the Alps and in the whole of Italy was however still strong, particularly for women, with a difference of 10 percentage points: in 2013 the inactivity rate for women in the western Alps was 39.7%, 37.8% in the eastern Alps, while in Italy it reached 46.4%.

Inactivity rate (people aged 15-64)	Total			Males			Females		
	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
2007	32.5	30.8	37.5	23.0	22.2	25.6	42.4	39.6	49.3
2010	32.5	30.7	37.8	23.0	23.0	26.7	42.3	38.7	48.9
2013	30.7	29.8	36.5	22.0	21.9	26.6	39.7	37.8	46.4

Table 30: Inactivity rate in Italy, 2007-2013.

According to the main labour market indicators, the Alps are much more dynamic than the whole of Italy, with a less deteriorated employment market and lower levels of unemployment. In the Alps, the situation is not homogeneous: the eastern areas are more developed than the western regions. The employment structure per sector of economic activity in the Alps shows similarities and differences, just like the two areas taken into account (western and eastern Alps) and Italy as a whole. The western Alps are more geared to the manufacturing and construction activities than Italy, while they are "weaker" in terms of public administration, professional and support services and real estate, transportation, and information and communication technologies. With the recession (and perhaps also due to a greater awareness of their ability to accommodate tourists) the proportion of people employed in accommodation and food services has increased (from 5% in 2007 to 6.9% in 2013) and also the percentage of people employed in other services activities (from 4.8% to 6.6%), where social services are strong, and also in education and health (from 13% to 14.1%). In other words, employment shows greater resilience in the fields of essential goods and services that continue to show attractive market perspectives despite the crisis.

In the distribution of employment between employees and self-employed, the western Alps show a higher self-employment rate than the eastern Alps. In 2007, the difference was more than 5 percentage points (27.3% vs. 22.2%) but, with the crisis, distances tended to shorten due to the decrease in the west, that fell to 26.3% in 2013. The reason for this is the increased number of small-sized businesses that characterise the western Alps. It can also be noted that the distance between the two Alpine areas is greater than with respect to the national context. In the eastern Alps, significant numbers of jobs, compared to other contexts, can be found in accommodation and

	2007			2010			2013		
	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
% Agriculture	3.0	4.0	4.0	3.2	4.0	3.8	2.5	4.0	3.6
% Manufacturing	30.4	24.8	22.5	26.4	24.1	20.2	27.7	22.3	20.2
% Construction	9.9	8.3	8.4	10.6	8.3	8.5	9.3	7.4	7.1
% Wholesale and retail trade	13.4	13.4	15.2	13.9	12.3	14.7	12.3	13.7	14.8
% Accommodation and food service activities	5.0	6.4	5.0	6.1	7.3	5.2	6.9	7.7	5.6
% Transportation	3.0	2.9	3.9	3.5	3.8	4.7	3.5	3.7	4.7
% Information and communication	2.1	2.0	2.8	1.0	1.4	2.3	1.5	2.0	2.5
% Financial and insurance activities	3.1	2.8	2.9	2.7	2.4	2.9	2.3	2.3	2.8
% Professional and support services, real estate	8.2	8.2	9.6	9.1	8.7	10.6	9.5	8.5	10.8
% Public administration	4.1	6.6	6.1	4.7	6.1	6.2	3.8	5.8	5.8
% Education and health	13.0	15.8	13.7	13.2	16.6	13.9	14.1	16.7	14.5
% Other services activities	4.8	4.9	5.9	5.5	5.0	7.0	6.6	6.0	7.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 31: Employment structure per NACE sector in Italy, 2007-2013.

food services as well as in education and healthcare, while the industrial sector is much lower than the western Alps (22.3% against 27.7% in 2013) and slightly higher than the national average. The less incisive sectors are financial and insurance activities and professional and real estate services that report, over the period of reference, lower occupation rates than the other geographical areas. During the downturn, even in the eastern Alps, some sectors proved to be tighter such as agriculture (which remained stable at 4% over the period), wholesale and retail trade (from 13.4% in 2007 to 13.7% in 2013, after a decrease in 2010) and basic services (other services, transportation, education and health), while the public administration (also thanks to local autonomy in the municipalities of the

	2007			2010			2013		
	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
% Employees	72.7	77.8	73.9	73.3	76.9	74.8	73.7	77.5	75.3
% Self-employed	27.3	22.2	26.1	26.7	23.1	25.2	26.3	22.5	24.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 32: Employees and self-employed in Italy, 2007-2013.

provinces of Bolzano/Bozen, Trento and Friuli-Venezia Giulia) showed a greater importance here than elsewhere, although it seems to have been scaled down in recent years.

In recent years, the proportion of part-time jobs grew in all areas. The highest percentage of part-timers is recorded in the eastern Alps, where, between 2007 and 2013, it rose from 16.8% to 18.8%. Even in the western Alps the use of part-time rose from 13.1% to 15.7%. This growth is even more relevant throughout the country, with an increase in the period of more than 4 percentage points. The crisis produced, on the one hand, a reduction in working hours (in some cases in combination with the use of the temporary layoff benefit) for those who had a job, and the need to accept jobs with shorter working times for those who did not have a job, but still had the need to have an income even though lower than expected. As in many other contexts, the differences between women and men in the use of part-time are very significant: while the proportion of men who adopt this working time arrangement is around 5%, with a slight growth especially recently, for women it reaches 32.0% with a peak of 36.3% in the eastern Alps.

		Total			Males			Females		
		Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
2007	% Full-time	86.9	83.2	86.4	96.8	95.4	94.5	73.6	66.0	73.1
	% Part-time	13.1	16.8	13.6	3.2	4.6	5.5	26.4	34.0	26.9
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2010	% Full-time	86.3	82.4	85.0	96.8	95.4	94.5	71.2	65.0	71.0
	% Part-time	13.7	17.6	15.0	3.2	4.6	5.5	28.8	35.0	29.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2013	% Full-time	84.3	81.2	82.1	93.9	94.5	92.1	71.3	63.7	68.1
	% Part-time	15.7	18.8	17.9	6.1	5.5	7.9	28.7	36.3	31.9
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 33: Part-time and full-time employees in Italy, 2007-2013.

Another feature of employment which received considerable attention in recent years is temporary work. At national level, the share of employees with a fixed-term contract is around 13%. With the recession this proportion has not significantly changed. While companies have reduced staff beginning with those who held the weakest job positions, they have used temporary work contracts to cope with the fluctuating trends in the demand of goods and services which was precarious and uncertain since recession did not appear to end. In this context, the eastern Alps feature

	2007			2010			2013		
	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
% Fixed term	11.5	13.4	13.2	11.4	13.8	12.8	12.4	13.8	13.2
% Permanent	88.5	86.6	86.8	88.6	86.2	87.2	87.6	86.2	86.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 34: Fixed-term and permanent employees in Italy, 2007-2013.

a share of fixed-term employees that is fairly stable throughout the period, and amounted to 13.8% in 2013, while in the western Alps the share of fixed-term contracts is slightly lower, but grew in the period from 11.5% in 2007 to 12.4% in 2013.

Unemployment grew rapidly in recent years mainly as a result of the recession that has taken employment opportunities away from an ever increasing labour supply, as shown by the indicators above. By further analysing some features of the unemployment structure, younger generations are clearly affected more heavily by this downturn. The youth unemployment rate (15-24 years of age), over the period considered, doubled in Italy and went from 20% to 40% between 2007 and 2013. Youth unemployment grew especially between 2010 and 2013.

In the Alpine arc the situation is similar: although the levels are lower than in the whole of Italy, the growth of youth unemployment seems more relevant in the western Alps, from 9.5% in 2007 to 29.1% in 2013, while in the eastern Alps it rose from 7.8% to 23.7% in the same years. In all areas, however, there are no specific gender differences, which increased similarly.

Young unemployment	Total			Males			Females		
	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
2007	9.5	7.8	20.3	6.8	6.4	18.2	12.8	9.7	23.3
2010	14.4	12.0	27.8	13.9	9.8	26.8	15.0	15.2	29.4
2013	29.1	23.7	40.0	28.8	21.6	39.0	29.5	26.5	41.4

Table 35: Youth unemployment in Italy, 2007-2013.

Long-term unemployment rate (people seeking employment for 12 months and more) is particularly critical. In the Alpine arc, long-term unemployment, before the crisis, was rather marginal at 1.2% in the western Alps and 0.7% in the eastern Alps in 2007. For males, figures were negligible (0.6% in the western Alps and 0.3% in the eastern Alps), while women recorded slightly higher levels. Even domestically, long-term unemployment rates were low before the crisis. The recession has produced a significant change, prolonging the time searching for a job at rates that, in 2013, reached 4.4% in the western Alps and 2.6% in the eastern Alps compared to 6.9% in Italy.

This indicator does not particularly differ between men and women, who report very similar values showing that the crisis affected similarly both genders in the prospects of finding employment. It should be noted that, while in 2007 long-term unemployment accounted for about one third of the total, with the crisis it tended to account for more than half of the people looking for employment. This trend can be easily explained by the continuing lack of job opportunities for people who start searching for a job and do not find one. They extend the time of their search and end up in the group of long-term unemployed people.

The acronym NEET means young people not employed and not at school or in any training activity. Conventionally this set refers to people aged 15-29 even though other groupings may be considered depending on the type of analysis to be performed. In other words, this indicator provides a measure of the social imbalance that new generations are facing and that can be generated by the difficulty of finding a job after studying or after leaving education early. In addition, belonging to this group also discourages young people who do not seek employment because they think they cannot find any.

With the great recession that is still not over, the proportion of young people NEET increased considerably: between 2007 and 2013 in the western Alps it went from 7.4% to 14.1%, in the eastern Alps from 6.7% to 11.2%, while nationally from 12.9% to 18.4%. A breakdown by gender shows a strong differential in favour of men that, however, tended to diminish in recent years. In the western Alps a difference of almost 7 percentage points in 2007 (4% of

men versus 10.8% of women) went down to about 1.5 in 2013 (13.4% versus 14.8%). In the eastern Alps this trend seems less pronounced although the differences between men and women are more noticeable (9.6% of men compared to 12.8% of women in 2013). In Italy, the situation of women is even more critical, with a share of NEET of almost 20.0%.

NEET*	Total			Males			Females		
	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
2007	7.4	6.7	12.9	4.0	3.8	10.4	10.8	9.6	15.5
2010	9.0	9.5	15.3	7.3	7.8	13.5	10.7	11.3	17.3
2013	14.1	11.2	18.4	13.4	9.6	17.3	14.8	12.8	19.6

Table 36: NEET in Italy, 2007-2013.

\* People aged 15-29 years not in employment and not in any education or training activities.

## SLOVENIA

In 2011, based on the census conducted among persons aged 15–64 in Slovenia, 33.6% of the population was inactive, i.e. people who were not working, not looking for work and not prepared to accept a job (table 37). Most of the inactive population were retired people and university and high-school students (85.0%). In the same year, a 38.4% inactivity rate was recorded among women, which was significantly higher – 9.4 percentage points – than the rate of inactive men, which amounted to 29.0%.

Inactivity rate (%)	Total	Men	Women
Slovenia	33.6	29.0	38.4
Municipalities (LAU2) within the perimeter of the AC – TOTAL:	33.7	29.1	38.5
entirely within the AC area	34.0	29.5	38.7

Table 37: Inactivity rate per gender. Source: Statistical Office of the Republic of Slovenia, year 2011.

The differences between male and female inactivity rates can be largely explained by the following factors:

- women enter the labour market – i.e. become employed – later in life, which is directly related to the fact that far more women than men accomplish a university degree;
- women retire earlier due to current legal differences between the two sexes related to years of employment and the minimum retirement age;
- there are more men aged 15–74 in Slovenia, mainly as a result of a particular gender distribution of foreigners.

Given these demographic trends and forecasts, Slovenia's inactive population will grow in the future. The expected ageing of the baby boom generation, which is turning into an elderly population (65 years or older), will cause a rapid decline in the working-age population. The ratio between the elderly and working-age population – or in other words, between retired persons and the economically active population – might be a deterrent to economic development, since a relatively small number of economically active people will support a large number of inactive ones. One of the key challenges in the future of the Slovenian labour market is to increase activity levels among the older working-age population. This applies equally well to Slovenia's Alpine Convention area.

In 2011 there was a significant increase in the number of inactive persons due to increased retirement, for this was the time when the new Pension and Disability Insurance Act, which would tighten the conditions for retirement, was

going to enter into force. In that year, many persons aged 50–64 left the labour market in different ways. In general, a low activity rate among the population aged 50–64 is one of the main characteristics of the Slovenian labour market, and it is mainly a result of early retirement.

In 2011, the rate of inactivity among persons aged 15–64 in the Alpine Convention area was 33.7%, and this rate did not substantially deviate from the inactivity rate in Slovenia as a whole (33.6%). In the municipalities that are entirely located within the Alpine Convention area, the inactivity rate was higher by just 0.4 percentage points (34). The inactivity rate for women and for men in the Alpine Convention area was the same as in Slovenia as a whole and therefore amounted to the following percentages: Among women and men aged 15-64, 38.5% and 29.1% were inactive, respectively, so the difference between the two groups amounted to 9.4 percentage points.

In 38.7%, or 24 out of 62 Alpine Convention municipalities, the inactivity rate was higher than the rate in Slovenia as a whole (33.6%) in 2011. All these municipalities, except for one, are entirely located within the Alpine Convention area. The difference between the highest and the lowest inactivity rate in the Alpine Convention municipalities was 11.8 percentage points. The highest inactivity rate was recorded in the Ravne na Koroškem municipality (41.6), while the lowest inactivity level, under 30, was recorded in the municipalities of Logatec (29.9) and Solčava (29.8).

According to the 2011 census, the employment rate in Slovenia amounted to 58.7%; this means that just over 58% of the working-age population was economically active (i.e. employed, self-employed, farmers and unpaid family workers, table 38). In the same year, the proportion of economically active men belonging to the working-age population was higher than that of economically active women. The economic activity rate (the proportion of economically active persons in the working-age population) amounted to 63.1% for men and to significantly less, 54.2%, for women, the difference being 8.9 percentage points.

The developments in the labour market reflected the economic crisis that began in 2008, when the rate of economic activity started to decline.

In the Alpine Convention area, the employment rate did not deviate from the employment rate in Slovenia as a whole (only 0.2 percentage points), and amounted to 58.9% in 2011 (census 2011).

Employment rate (%)	Total	Men	Women
Slovenia	58.7	63.1	54.2
Municipalities (LAU2) within the area of the AC – TOTAL:	58.9	63.5	54.0
entirely within the AC area	59.1	63.8	54.0
partly in the AC area	58.7	63.2	54.0

Table 38: Employment rate per gender. Source: Statistical Office of the Republic of Slovenia, year 2011.

A higher percentage of economically active persons (among the working-age population, i.e. people aged 15-64) was found in 63.9% or 39 of the 62 municipalities in the Alpine Convention area compared to Slovenia as a whole (58.7%). In all the municipalities that are only partially located in the Alpine Convention area, the activity rate was higher, except for the municipalities of Maribor (53.8%) and Rače - Fram (58.3%). The difference between the highest and the lowest activity rate in the Alpine Convention area was 14.3 percentage points. The highest activity rate was recorded in the municipality of Železniki (65.2%), while the lowest was recorded in the municipality of Ribnica na Pohorju (50.8%). In 2011, the economic activity rates were lower mostly in municipalities in the eastern part of the Alpine Convention area – the regions of Pohorje and the Eastern Karavanke Alps.

The rate of employed and self-employed men was higher than the rate of employed and self-employed women in all Alpine Convention municipalities.

In 2011 (2011 census), the economic activity rate (the proportion of economically active persons in the working-age

population) in the Alpine Convention area was 63.5% for men and 9.5 percentage points less for women (54%). In the Alpine Convention area, the differences between the rates of economically active men and women ranged from 19.5 percentage points in the municipality of Podvelka to only 2.5 percentage points in the municipality of Solčava in 2011.

In 2011 the economic activity rate for women in the Alpine Convention area did not deviate substantially from Slovenia as a whole, yet there were significant differences in values between individual municipalities, ranging from 60.3% to 41.2%.

The highest percentages of economically active women were recorded in the municipalities of Logatec (60.3%), Jezersko (59.5%), Solčava and Železniki (59.2), while the rates were lowest in the municipalities of Ribnica na Pohorju (41.2%) and Podvelka (41.3%) – the latter two municipalities have the lowest economic activity rates and the largest differences between women and men.

In 2011, in Slovenia, the proportion of registered unemployed persons (i.e. the official unemployment rate) was 11.5 (Table 39). As in the activity rate of the population, there are large differences in unemployment between men and women. The proportion of unemployed men (11.1%) was lower than the proportion of registered unemployed women (12.0%).

	Unemployment rate (%)			Young unemployment rate (%) for 15-24 age group		
	Total	Men	Women	Total	Men	Women
Slovenia	11.5	11.1	12.0	24	20.9	30
Municipalities (LAU2) within the area of the AC – TOTAL:						
entirely within the AC area	11.2	10.5	12.2	23.8	20.4	30.5
partly in the AC area	10.5	9.4	11.9	21.8	18.8	27.7
	11.8	11.3	12.4	25.5	21.8	32.9

Table 39: Unemployment and youth unemployment rate per gender. Source: Statistical Office of the Republic of Slovenia, year 2011.

In the Alpine Convention municipalities in 2011, the overall proportion of registered unemployed people was 11.2 and did not deviate materially from the proportion of registered unemployed in Slovenia. In municipalities, entirely located in the Alpine Convention area, this proportion was 10.5%, 0.7% lower than total Alpine Convention while in municipalities partially located in the Alpine Convention area, this proportion was higher by half (0.5) percentage point.

This year, in the Alpine Convention area 25 out of 62 municipalities or 42% of municipalities of the Alpine Convention showed higher rates of unemployment than the Slovenian average (over 11.5%). The difference between the highest and the lowest registered unemployment rate in the Alpine Convention area was 12.2%. In 2011, the municipalities Podvelka (16.8%), Ribnica na Pohorju (16.4%) and Ruše (16.2%) and Maribor (16.1%) had the highest unemployment in the Alpine Convention area – with an unemployment rate of more than 16%. All these municipalities are situated in the eastern part of the Alpine Convention.

This year, however, the lowest registered unemployment rate in Slovenia was recorded in some municipalities in the Alpine Convention area. The lowest – under 5 % – was in the municipality of Cerklje ob Krki (4.6%) followed by the municipalities of Železniki (5.1%), Gorenja vas-Poljane (5.4%) and Jezersko (5.6%) which also stood out for low registered unemployment rates (under 6%).

In 2011, also in the Alpine Convention area, the proportion of registered unemployed men (10.5%) was lower than the proportion of registered unemployed women (12.2%), but the difference in the unemployment rate between the two was slightly higher (1.7%). In most municipalities of the Alpine Convention – approximately 74.2% of all municipalities of the Alpine Convention – the registered unemployment rate for women was higher than the registered unemployment rate for men in 2011. The difference in the unemployment rate between women and men was slightly

higher in municipalities, situated entirely in the Alpine Convention area, i.e. 2.4 percentage points. Differences in the unemployment rate between women and men were very high in some municipalities of the Alpine Convention. These municipalities recorded the highest differences in the unemployment rate also in Slovenia as a whole. The unemployment rate of women was significantly higher than the unemployment rate of men. In the municipality of Podvelka, the unemployment rate of women was higher by 14.3 percentage points than the unemployment rate of men, in the municipality of Ribnica na Pohorju this difference was 14.4 percentage points. Large differences in the unemployment rate between women and men, with the unemployment rate of women significantly higher than the unemployment rate of men, were also in the municipalities of Muta (9.1%), Radlje ob Dravi (8.9%), Vuzenica (9.5%), Mežica, Ravne na Koroškem (8.3%). These municipalities are generally characterised by a high unemployment rate of women. Those municipalities, where in 2011 more than 20% of unemployed women was recorded, are: Podvelka (25.3%), Ribnica na Pohorju (24.8%), Muta (21.1%), Radlje ob Dravi (20.4%). All these municipalities are entirely located in the Alpine Convention area, in its eastern part or in Koroška.

On the contrary, for the majority of municipalities, where in 2011 a relatively low unemployment rate was recorded, there were minor or negligible differences in the unemployment rate between women and men. 25.8% or 16 out of 62 municipalities in the Alpine Convention area recorded a higher male unemployment rate than the female unemployment rate. Differences were relatively low – from 0.1 to 3.9 of percentage points in the municipality of Solčava, whose unemployment was at 13.6%.

In 2011, Slovenia recorded an 24% unemployment rate of young people aged 15 to 24. The difference between men and women in this age group was very high. The proportion of officially unemployed men in this age group (20.9%) was lower by 9.2 percentage points than the proportion of officially unemployed women (30.0%).

In 2011, in the Alpine Convention, the youth unemployment rate (15-24 years) did not diverge significantly from the unemployment rate of this age group in Slovenia and was 23.8. That year a high difference in the unemployment rate between women and men was recorded. The proportion of registered unemployed men in this age group (20.4%) was lower by 10.1 percentage points than the proportion of registered unemployed women (30.5%).

In the same year, the difference in the unemployment rate between the municipalities entirely located in the Alpine Convention area (21.8%) differed from those partially located in the Alpine Convention area (25.5%).

In 2011, higher youth unemployment rate (15-24 years) than the unemployment rate of this age group in Slovenia (24%) was recorded in 43.5 % (or 27 out of 62) municipalities of the Alpine Convention. The difference between the highest and the lowest youth unemployment rate in the municipalities of the Alpine Convention was 43.8 percentage points. The highest youth unemployment rate was recorded in the municipality of Lovrenc na Pohorju (48.1%) and the lowest in the municipality of Gorenja vas-Poljane (- 4.2%).

## SWITZERLAND

The data for the focus on the Swiss labour market come from public databases and are available at NUTS 3 (cantonal) level. Though the geographical level of analysis is not as detailed as the municipal one, these data help compare three main typologies of cantons: the ones located completely in the Alpine Convention perimeter, the ones that are only partially located within it and the ones that are completely located outside it. Moreover, additional conclusions can be drawn by comparing the values in these three typologies of cantons with the national Swiss averages.

Three main indicators are considered in this national focus on the labour market: the inactivity rate, the employment rate and the unemployment rate. The selection of these indicators, equal to the ones that are analysed in the general section of the RSA 5, is motivated by the need to obtain information that, although collected on a different geographical level, can be compared with that concerning the other Alpine countries.

Regarding the first indicator (inactivity rate), in general, the cantons that are completely included in the Alpine Convention perimeter have higher values than the national Swiss average (19.8); the highest inactivity rate is recorded in the Canton of Ticino (28). Notable exceptions are represented by the Cantons of Obwalden, Glarus and Appenzell

A. Rh. whose inactivity rates are equal or higher than the national averages.

Both cantons that are only partially included in the Alpine Convention Perimeter and the ones completely outside of the Alpine Convention perimeter, have inactivity rates lower than the national Swiss average. In general, these differences seem to be related both to Alpine-specific features and to national specific features.

On the one hand, among other factors, the higher inactivity rate observable in the Alpine Swiss area can be associated with the higher presence of the elderly population. As an example, the rate of people older than 65 in Ticino (which is the Alpine canton with the higher inactivity rate) is 21%, while in Glarus – one of the Alpine cantons with a lower inactivity rate - it amounts to 8.1%. On the other hand, the data show country-related specific features: inactivity rates cannot be directly associated with the fact that a canton is located or not in the Alpine Convention perimeter, but rather with the specific socioeconomic and labour market situation in Switzerland and in the single cantons which seems to have a higher influence.

The same trends can be highlighted by analysing employment rates in the cantons, shown in annex D. On average, the cantons fully located in the Alpine Convention perimeter have a lower employment rate (74.4) than the average Swiss rate (79.4). Nevertheless, this value is influenced by the low rates of some cantons, since half of the ten cantons fully included in the Alpine Convention perimeter have rates that are even higher than the Swiss average. These low values can be observed in the Cantons of Ticino (66.2%), Valais (74.2%) and Uri (76.5%), while values above average can be observed in the cantons Appenzell-Ausserrhoden (80.3%), Glarus (80.5%) and Obwalden (82.5%).

All in all, also the cantons only partially located in the perimeter of the Alpine Convention show diversity, which suggests that employment rates are more linked to the specific territorial and to the internal situation rather than to the fact that a canton belongs to the Alpine Convention perimeter.

Regarding the unemployment rate, the data show a similar absence of clear Alpine-related patterns. In parallel with the values displayed for the employment rates, the cantons located in the perimeter of the Alpine Convention generally show average lower unemployment rates than the average Swiss national rate (4.2%). Among these, Uri (1.3%) and Obwalden (1.3%) have the lowest unemployment rates in Switzerland. However, the Cantons of Ticino and Valais, both entirely located in the Alpine Convention perimeter, have values above the national average unemployment rate. A comparison with the cantons that are not located within the perimeter of the Alpine Convention and with the ones that are only partially located within it confirms this diverse pattern: the overall average unemployment rate in non-Alpine cantons is higher than the national rate (5.2%), with differences between the Cantons (such as in the Canton of Genève, which has the highest unemployment rate in Switzerland, with a rate of 10.7%).

Finally, cantons partially located in the perimeter of the Alpine Convention, have the lowest overall average unemployment rate for the three typologies considered (4.6%) in comparison with the Swiss average. However, such as for other typologies of cantons, internal differences can be identified: for example, the Cantons of Fribourg (5.0%) and Vaud (7.7%) have even significantly higher unemployment rates than the national averages. As a general conclusion it is not possible to state that the labour market in the Swiss cantons located in the Alpine Convention perimeter has clear specificities in comparison to non-Alpine Swiss areas. Local drivers and the national situation seem to play a more relevant role.

### 3.3 EDUCATION

Education plays a vital economic and social role and the development of the education sector can give important information on the development of demographic trends (Eurostat, 2010). The presence of schools and universities and the commuting distances to education facilities can influence the persistence of young population and their families, at least during the school period. Moreover, education level, labour market and demographic trends are dynamically intertwined. The younger and better qualified population is usually more mobile than the older generations; therefore, the absence of an adequate job supply for qualified young people is likely to favour their movement towards peri-Alpine areas, where higher rates of highly qualified jobs can be found. This event, common to mountain areas and other geographically marginal areas, is also defined as “brain drain”, i.e. the emigration of skilled labour force to more favourable areas with better opportunities (Corrado et al., 2013). This may relate to different segments of society, but it seems particularly

evident when it affects young people accessing to higher education.

The general situation in the Alpine area is very diverse with respect to the rate of university graduates in relation to the total number of residents aged over 15 in the municipalities of the eight Alpine countries. This is because education policy may be largely affected by the education systems present in the various Alpine countries; therefore the spatial distribution of education levels is more related to the country than to “Alpine-related characteristics”. Moreover, national education systems vary in length, social status or other characteristics, and their outcomes are not fully comparable.

These patterns can be clearly observed in the distribution of the rate of completion of secondary and tertiary education. As for the chapter on labour market, also in this section data for Germany and Switzerland were collected at NUTS 3 level and therefore they have been mapped in Annex D.

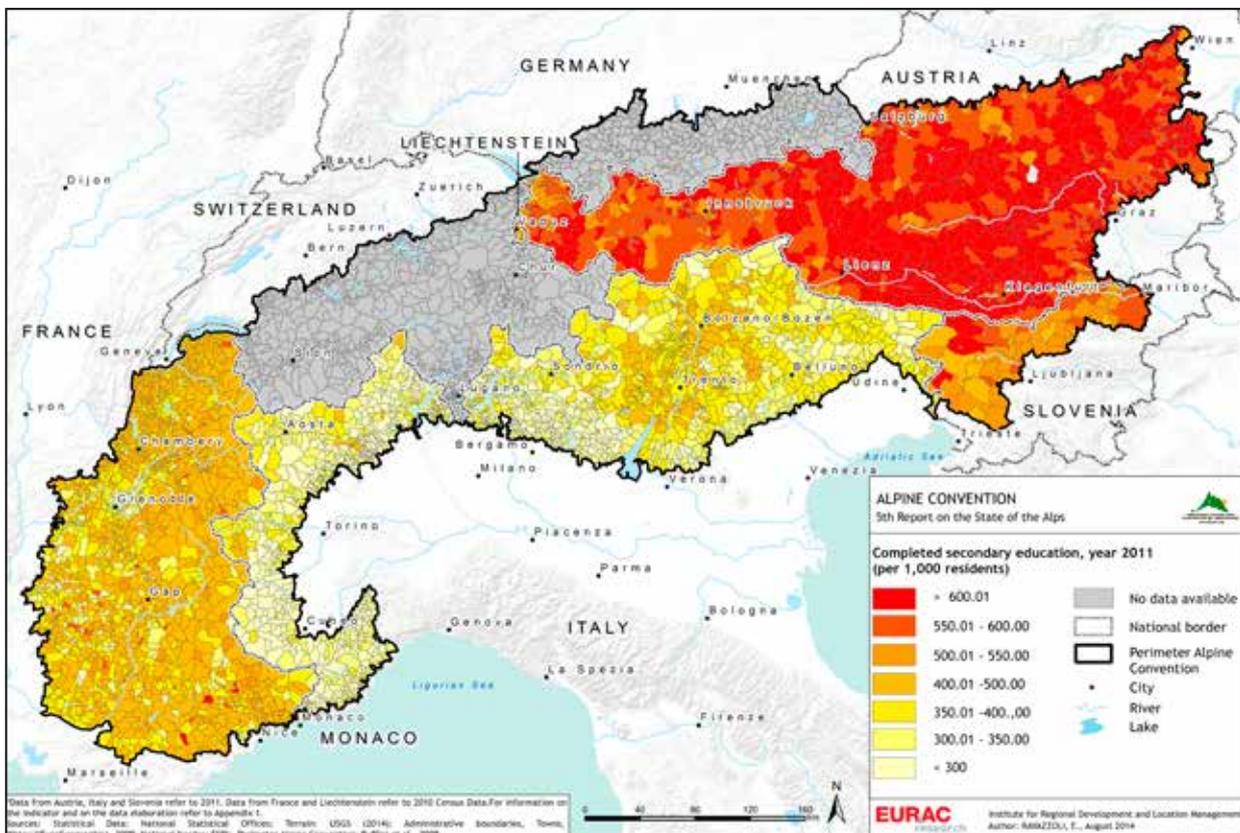


Figure 40: Completed secondary education (per 1,000).

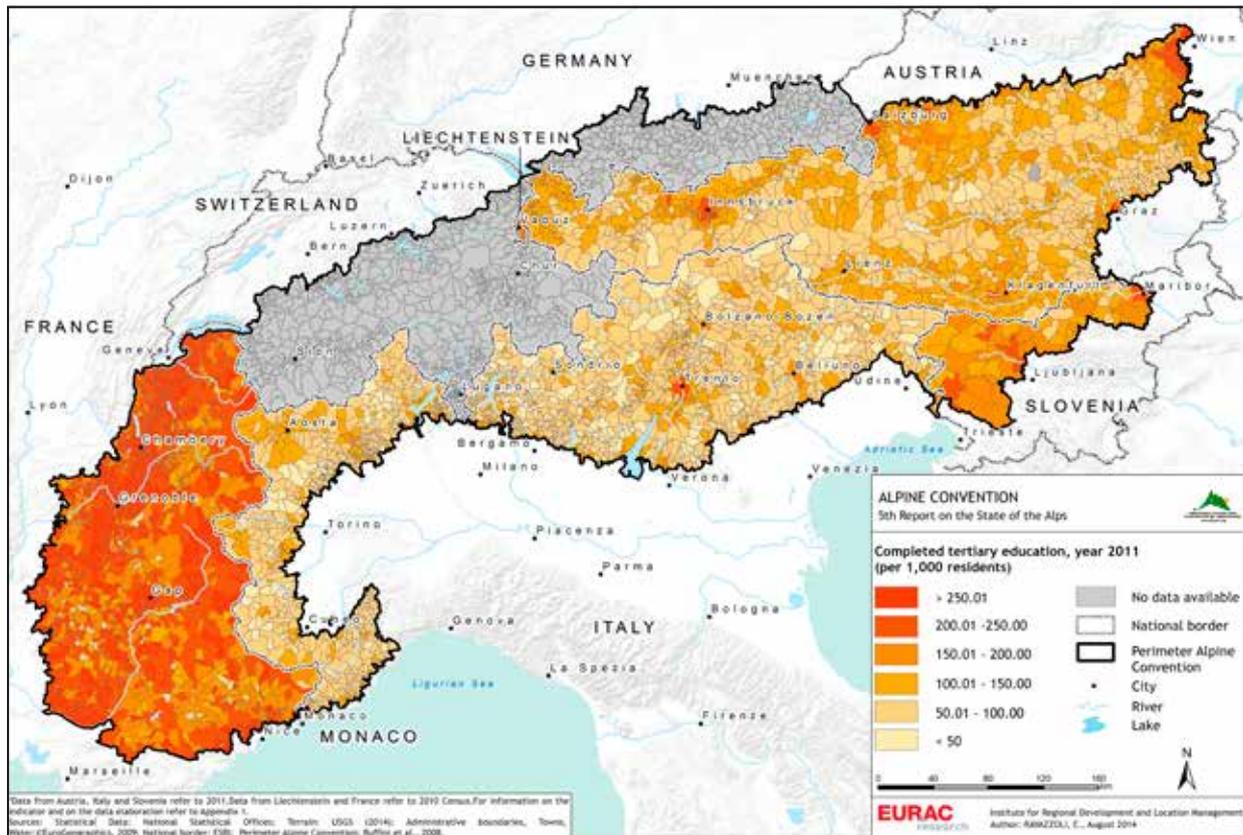


Figure 41: Completed tertiary education (per 1,000).

## National contributions

### AUSTRIA

When comparing Alpine and non-Alpine regions, residents in the Austrian Alpine regions have higher levels of completed secondary education and coincidentally lower levels of completed tertiary education than residents in non-Alpine regions and national averages. In 2011, 56.8% of the total population had completed secondary education. In the Alpine regions the share was even higher (58.6%) compared to 55.7% in the non-Alpine area. As for completed tertiary education, the share of the total population in the whole country was 14.8%, whereas it was only 13.6% in the Alpine area, and 15.6% in the non-Alpine zone.

	Total			Male			Female		
	Alpine area	Non-alpine area	Austria total	Alpine area	Non-alpine area	Austria total	Alpine area	Non-alpine area	Austria total
Secondary education (%)	58.6	55.7	56.8	62.4	59.1	60.4	55.3	52.3	53.5
Tertiary education (%)	13.6	15.6	14.8	16.3	17.9	17.2	11.1	13.5	12.6

Table 40: Completed secondary and tertiary education in Austria (2011).

Concerning gender differences, in the Alpine area and in the non-Alpine area – men record higher values than women for both indicators. Regarding the completion of completed secondary education, the differences between Alpine and non-Alpine regions are not much bigger for men than for women, while in tertiary education they are bigger for women than for men.

The regional distribution of the population that had completed tertiary education is closely linked to the urban agglomerations, while rural areas have much lower shares due to a general lack of adequate jobs. This is particularly true for remote rural areas, for example in Tyrol and Styria. In contrast, suburban areas usually feature very high shares of academically educated people, for example around the cities of Innsbruck and Salzburg and in many municipalities in Wienerwald west and south-west of Vienna, which belong to the area of the Alpine Convention.

### FRANCIA

The education level of the population is significantly higher than the national average (4 points higher in secondary education and 3 points in tertiary education), since employment in the Alpine cities (Grenoble and Geneva) is highly skilled.

The education level of the population living in the central part of the area, far from major cities, is not significantly lower than the national average, except for the tertiary level (*enseignement supérieur post-bac*): this can probably be explained by the arrival, in those areas, of retired and semi-retired citizens coming from Paris and other large French towns.

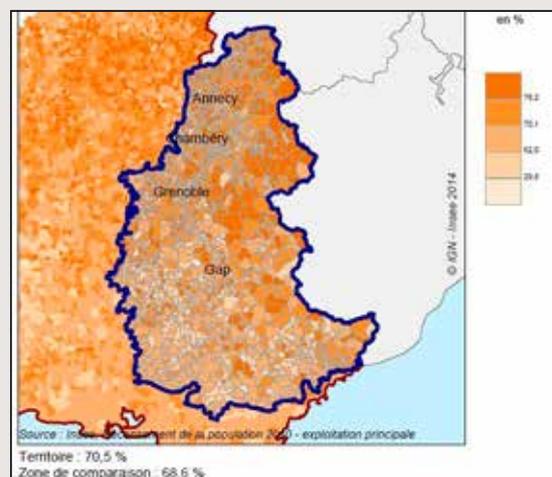


Figure 42: Completed secondary education in the French Alps, 2010.

## GERMANY

For this national focus, the data regarding the levels of education of the German Alpine population come from public databases and are available at NUTS 3 level, with two main administrative units: the districts (Kreise) and the urban districts (Kreisfreie Städte).

The analysis of education trends is based on two main indicators: the rate of the population that attained a secondary education level and the rate of the population that attained a tertiary education level. Due to the differences in education systems across the Alps, it is worth specifying that secondary education refers here to the ISCED (the UNESCO International Standard Classification of Education) levels 3 and 4 (*Sekundarbereich II and Nichttertiäre Bildung nach dem Sekundarbereich*), while, under "tertiary education", we refer to the ISCED levels 5 and 6 (*Tertiärbereich Stufe I and II*) (EUROSTAT, 2014).

The level of education is connected to other relevant social and demographic factors. Specifically, in Germany, higher education levels are still associated with higher employment possibilities, despite the broader changes occurring on the labour market (Bundesministerium für Bildung und Forschung, 2014). A higher education level is also connected to health factors, with persons with a higher level of education tending to be more active. Finally, education is also linked to social aspects such as political interest and participation (ibid., 2014).

Regarding the rate of the population who completed a higher secondary education cycle, the German Alpine urban and rural districts show levels of secondary education ranging from the lowest value of 432.0 residents on 1,000 (urban district of Kaufbeuren) to the highest value of 531.0 (districts of Ostallgäu and Oberallgäu). Except for the already mentioned value in the urban district of Kaufbeuren and for the value recorded in the district of Berchtesgadener Land (447.0), all the Alpine German districts display secondary education values that are higher than the Bavarian average (459.0) and the German average (460.0).

The analysis of the tertiary education level gives a complementary picture to that of secondary education. The rates of residents with a tertiary education degree in the German Alpine area range from the lowest value of 105 per 1,000 inhabitants in Ostallgäu to the highest value of 168.0 in the district of Miesbach.

In general, the German Alpine urban and rural districts show values of tertiary education which are also significantly lower than the Bavarian (147.0) and German (150.0) average. Apart from the already mentioned value for the district of Miesbach, only two other Alpine administrative units have tertiary education rates higher than the Bavarian and German averages: the urban district of Rosenheim (with 148.0 inhabitants on 1,000 having completed a tertiary study cycle) and the district of Berchtesgadener Land (168.0 inhabitants on 1,000 with a tertiary education level).

The data show that, although differences can be observed according to the specific socio-economic situation and the education supply in the single district, and while the participation of the population to secondary and tertiary education in Bavaria from 1998 to 2013 increased (Federal Ministry for Education and Research, 2014), the Alpine German areas still show lower levels of tertiary education than the average Bavarian and German figures. Despite some local exceptions, the average lower tertiary education values of the German Alpine areas seem directly associated with higher levels of secondary education, compared to the Bavarian and German averages.

In conclusion, it can be stated that residents in the Alpine German areas have higher levels of secondary education, but lower levels of tertiary education compared to national averages. This can be partly explained by the fact that persons with a tertiary level of education tend to move outside mountain areas, where job opportunities are more in line with their education level.

## ITALY

Traditionally Italy has always had lower education levels than the other European countries. Although in recent years there is a trend towards reducing this gap, distances are still clear. In Italy, less than half of the population aged 15 years or more completed secondary or tertiary education. During the years taken into account, however, the proportion of the population with these qualifications grew although this change generally needs a very long time to be evaluated.

In the western Alps, about a third of the population attained a secondary education level in 2007, while in 2013 this figure rose to 35.3% showing a very similar trend to the national average. The eastern Alps show slightly higher percentages and in 2013 the population who completed secondary education exceeded 40%. As far as this indicator is concerned, a slight gender gap to the benefit of men can be observed, i.e. about 3 percentage points, which is constant over the entire period and in all geographical areas considered.

People aged 15+ with completed secondary education	Total			Males			Females		
	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
2007	33.3	36.2	33.3	34.7	37.9	34.6	32.0	34.6	32.1
2010	33.8	38.9	34.5	34.4	40.6	36.1	33.2	37.2	33.1
2013	35.3	40.7	35.8	36.7	43.1	37.2	33.9	38.5	34.5

Table 41: Completed secondary education in Italy, 2007-2013.

The situation is very different when considering the population aged over 15 who have completed tertiary education. Alpine areas have lower percentages than the whole of Italy, particularly in the west (in 2013, 9.2% in the western Alps, 11.1% in the eastern Alps and 12.3% in Italy). In all areas, however, this indicator is growing, which confirms a slow trend towards achieving higher education levels for the younger generations. According to this indicator, females perform better than men: everywhere the advantage of women is of about 1-1.5 percentage points over men. In 2013, in the western Alps the distance was even more remarkable, with a 10.6% share of women with tertiary education compared to 7.8% of men.

People aged 15+ with completed tertiary education	Total			Males			Females		
	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy	Western Alps	Eastern Alps	Italy
2007	7.7	9.1	10.2	7.1	9.6	9.9	8.2	8.7	10.5
2010	8.3	9.8	11.1	7.7	9.6	10.6	8.8	9.9	11.5
2013	9.2	11.1	12.3	7.8	10.3	11.6	10.6	11.9	12.9

Table 42: Completed tertiary education in Italy, 2007-2013.

An increased number of people with secondary education levels in the Alps than the national average, and vice versa as regards tertiary education, can be explained by the economy and the productive structure of the Alpine territories that require more applied and technical skills that can be easily implemented in manufacturing and in accommodation and food services, that are most typical of these areas. In addition, the north has always shown higher average education levels since also older generations acquired secondary education levels more than people in the rest of the country.

## SLOVENIA

In Slovenia, in line with international recommendations, education is mandatory for persons aged 15 years; however, a large majority of children who have completed primary education continue their education. More detailed research shows that the level of education in Slovenia in the last decade increased due to the development of a network of high schools

	Completed secondary education (per 1,000 residents aged 15+)*			Completed tertiary education (per 1,000 residents aged 15+) **		
	Total	Men	Women	Total	Men	Women
Slovenia	533.5	600.5	468.7	174.9	152.7	196.3
Municipalities (LAU2) within the area of the AC – TOTAL:	544.7	613.4	478.0	173.0	151.8	193.6
entirely within the AC area	542.9	616.6	470.8	151.7	130.0	172.8
partly in the AC area	546.0	610.9	483.3	188.8	168.0	208.9

Table 43: Education attained in Slovenia, year 2011. Source: Statistical Office of the Republic of Slovenia.

\* Completed secondary education: Short-term vocational upper secondary, vocational upper secondary, technical, general upper secondary. \*\* Completed tertiary education: Short-term higher (former), higher vocational, 1st cycle of higher, professional higher (former) etc., 2nd cycle of higher, professional higher (former) etc., "Magisterij" of science (former) etc. Doctorate of science.

and universities, many new forms of education (e.g. e-learning) and a sharp increase in applications to tertiary education programmes.

In 2011, in Slovenia 533.5 people over 1,000 aged over 15 completed secondary education. The number of men with secondary education (600.5 per 1,000 people aged over 15) was higher than the number of women with the same education level (468.7 per 1,000 people aged over 15)

In the last decade, in Slovenia the number of people with general lower and higher secondary education increased, while the number of people with lower and upper secondary vocational education diminished significantly. The reason for this decrease is partly in the lack of interest of young generations for following lower and upper secondary vocational education programmes and partly in the fact that those who completed these programmes often continue their education in other secondary education programmes.

In Slovenia, as expected, in the last decade the number of people who did not complete primary education decreased rapidly, as this level of education is especially typical of people who are no longer in employment (61% of people with such education are older than 64).

In the Alpine Convention area, in 2011, 544.7 people out of 1,000 aged over 15 completed secondary education, which is slightly higher than the level of Slovenia (533.5 per 1,000 people aged over 15). Just as in Slovenia, this year the number of men with secondary education (613.4 per 1,000 people aged over 15) was higher than the number of women with the same education (478.0 per 1,000 people aged over 15).

In 2011, more than half or 55.6 % of municipalities of the Alpine Convention had a higher proportion of people who had completed secondary education than in the whole of Slovenia. The highest proportion of people who had completed secondary education was recorded in the municipality of Kanal (527.5 per 1,000 people aged over 15) and the lowest in the municipality of Cerklje (465.5 per 1,000 people aged over 15).

In 2011, every sixth inhabitant of Slovenia older than 15 had at least higher education (tertiary education). This year, 174.9 persons with at least higher education over 1,000 people aged over 15 were recorded. The number of women with higher education (tertiary education) (196.3 per thousand people aged over 15) was by one third higher than the number of men with the same education (152.7 per 1,000 people aged over 15). In the Alpine Convention area, this year slightly less people had at least tertiary education than in the whole of Slovenia (173.0 per 1,000 people aged over 15). A higher proportion of people with a tertiary education than in Slovenia could be found in 23.8% of the municipalities of the Alpine Convention. The highest number of people with at least higher education (tertiary education) was in the municipality of Žirovnica (228.8 per 1,000 people aged over 15) and the lowest in the municipality of Podvelka (79.9 per 1,000 people aged over 15). However, further analysis showed a significant difference between municipalities entirely located in the Alpine Convention area, and those that are only partially into it. In the latter, the proportion of people with at least higher education (tertiary education)

was higher than in Slovenia (174.9 persons with at least higher education per 1,000 people aged over 15) and amounted to 188.8 persons per 1,000 people aged over 15. This coincides with the fact that larger urban centres are located in these municipalities.

However, in the municipalities entirely located into the Alpine Convention area, the proportion of people with at least tertiary education was lower than in the whole of Slovenia, i.e. 151.7 people per 1,000 people aged over 15.

In the Alpine Convention area and in Slovenia, the number of women with at least higher education (193.6 per 1,000 people aged over 15) is higher than the number of men with the same education (151.8 per 1,000 people aged over 15).

## SWITZERLAND

This focus on education is based on data coming from public databases, which are available at NUTS 3 (Cantonal) level. The analysis compares the cantons that are fully located within the Alpine Convention perimeter, the ones that are partially located in the Alpine Convention perimeter and the ones that are fully located outside. Data are compared with Swiss national data.

The analysis of the education sector is based on two main indicators: the rate of the population that attained a secondary education level and the rate of population that attained a tertiary education level. For comparability reasons with the other data analysed in the general part of the report and in the national contributions of the other Alpine countries, the indicators have been calculated as ratio of persons with a completed secondary or tertiary education per 1,000 inhabitants older than fifteen. The values for these indicators may therefore vary from the ones shown in other statistical publications: for example, in the Statistical Swiss Atlas, the percentages are calculated on the total population older than twenty-five (BFS, 2014). Moreover, due to the differences that can be found among education systems in the Alps, it is also worth noting that secondary education level means higher secondary education (*Sekundarstufe 2*), while "tertiary education" means universities and institutes of technology (*Eidgenössische Technische Hochschulen*), universities of applied science (*Hochschulen*) and advanced vocational training.

Regarding the rate of population which completed an upper secondary education cycle, the data show a diverse picture for cantons fully located in the perimeter of the Alpine Convention as well as for the other areas. In general, the cantons located fully in the Alpine Convention perimeter show a higher rate of people who completed secondary education (473.9) in comparison with the cantons partially located in the Alpine Convention perimeter (470.2), the ones located completely outside the Alpine Convention perimeter (459.0) and the Swiss national average (468.9). The values for the Alpine cantons range from a lowest rate of 451.5 (Canton of Ticino) to a highest rate of 536.8 (Canton of Appenzell-Innerrhoden); in partially Alpine cantons, values range from 388.5 (Vaud) to 515.2 (Bern). Between the Alpine and partially Alpine cantons, the levels of secondary education appear quite homogeneous, and the differences can be explained with internal canton-related specificities rather than by the fact that a canton is fully or partially located in the Alpine Convention perimeter. A more relevant, although limited, difference in secondary education levels can be observed between the cantons fully and partially located in the Alpine Convention perimeter and the non-Alpine ones.

The analysis of the tertiary education level gives a complementary picture to that of the secondary education level. The average number of persons with a tertiary education level in the cantons that are entirely located in the perimeter of the Alpine Convention is lower (218.8) than the average Swiss national rate (265.9). A lower average value of attained tertiary education can also be observed for the cantons that are only partially located in the Alpine Convention (251.9), while the cantons fully located outside the perimeter of the Alpine Convention have a rate (290.0) that is higher than the Alpine rate and the average Swiss rate.

In conclusion, although the levels of education seem related to cantonal specificities, differences can be observed between the Alpine or partially Alpine Swiss cantons and the cantons that are fully located outside the Alpine area: the first ones display higher levels of secondary and lower level of tertiary education in comparison to the second ones. This suggests two possible interpretations: on the one hand, higher qualified people may tend to concentrate in proximity of the urban non-Alpine Swiss areas, where a job supply corresponding to the education level attained is more likely to be present. On the other hand, it can be assumed that people residing closer to urban areas would more likely attain a higher level of qualification due to the proximity of higher education institutions.

## Good practices

### The blended learning experience at the Mountain University (Italy)

#### Issues:

- implement educational opportunities for young people in the mountains (e.g. primary schools in sparsely populated areas, professional schools to teach traditional activities, universities) to avoid emigration and brain drain;
- create qualified employment to counter brain drain;
- innovative solutions to provide services in sparsely populated areas;
- innovation as a driver of sustainable development to preserve culture and the population.

#### Type of measure:

Pilot action: Mountain University in Edolo (BS).

#### Funding:

Framework Agreement between the Ministry of Education, University and Research and the University of Milan (no. 1293 dated 5 August 2011) – affirmation of Edolo as the Centre for Excellence “Mountain University”. This Framework Agreement is intended to consolidate and strengthen the Edolo Campus favouring its evolution as a university of excellence.

#### Background:

The centre will promote and experiment methodological and operational innovation specifically for the features, complexity and needs of mountain areas, by offering increasingly skilled and diversified training accompanied by fruitful research projects on the resources and development priorities for these areas.

The Mountain University, in particular, significantly experiments teaching methodologies on mountain trainings. In particular, the blended learning methodology is being widely used in university programmes, specialising courses and workshops organised at Edolo.

This method is perfectly in line with the objectives that the Mountain University has set with this initiative:

- Facilitate the dissemination of information and training to all subjects that are in various ways interested in the issues related to the enhancement and protection of mountain areas in all their forms;
- Support self-training of large population groups, also residing in distant and poorly connected mountain areas, on the themes of the enhancement and protection

of mountain areas, through a flexible teaching method, free of space and time constraints and accessible.

The strong points of the experience of the Mountain University are, indeed, its strong establishment in the mountain area and the focus on topics concerning the development and enhancement of mountain areas, in all their forms.

The experience has two different action levels:

1. Technological level: new teaching tools
  - Use of virtual classrooms for remote streaming connections or videorecording of seminars, classes and conferences, subsequently available on the the e-learning platforms;
  - Use of digital tools for teaching: digital whiteboards integrated in the virtual classrooms, interactive e-learning platforms (Ariel, Moodle, Wiggio/Blackboard), digital e-books and databases.
2. Methodological level: new teaching strategies
  - Experimenting new teaching approaches: complex learning and collaborative learning.

#### Implementation:

Since 2002 the Mountain University has been providing, through distance learning (virtual classrooms for remote connection and broadcasting of conferences and seminars), 121 seminars with the participation of about 1,174 people in virtual classrooms (table 44).

PARTICIPANTS in the seminars	
Number of people present	Through virtual classroom
3,110	1,174
Total 4,284	

Table 44. Number and type of participants in seminars (July 2014).

LDistance learning has significantly widened the range of the benefiting population, with several classrooms and private entities connecting from different locations of the Alpine arc (e.g. Domodossola, Verbania, thanks to the collaboration with the ARS.UNI.VCO Association). Several institutes and users have also connected from different Italian regions.

Those who connect are mainly clerks or technicians, self-employed, entrepreneurs including farmers, PhD students or individuals belonging to the agronomists' and foresters' associations, students. In addition to private users, also some public entities benefited from this service, providing their own room to interested users to follow the recorded

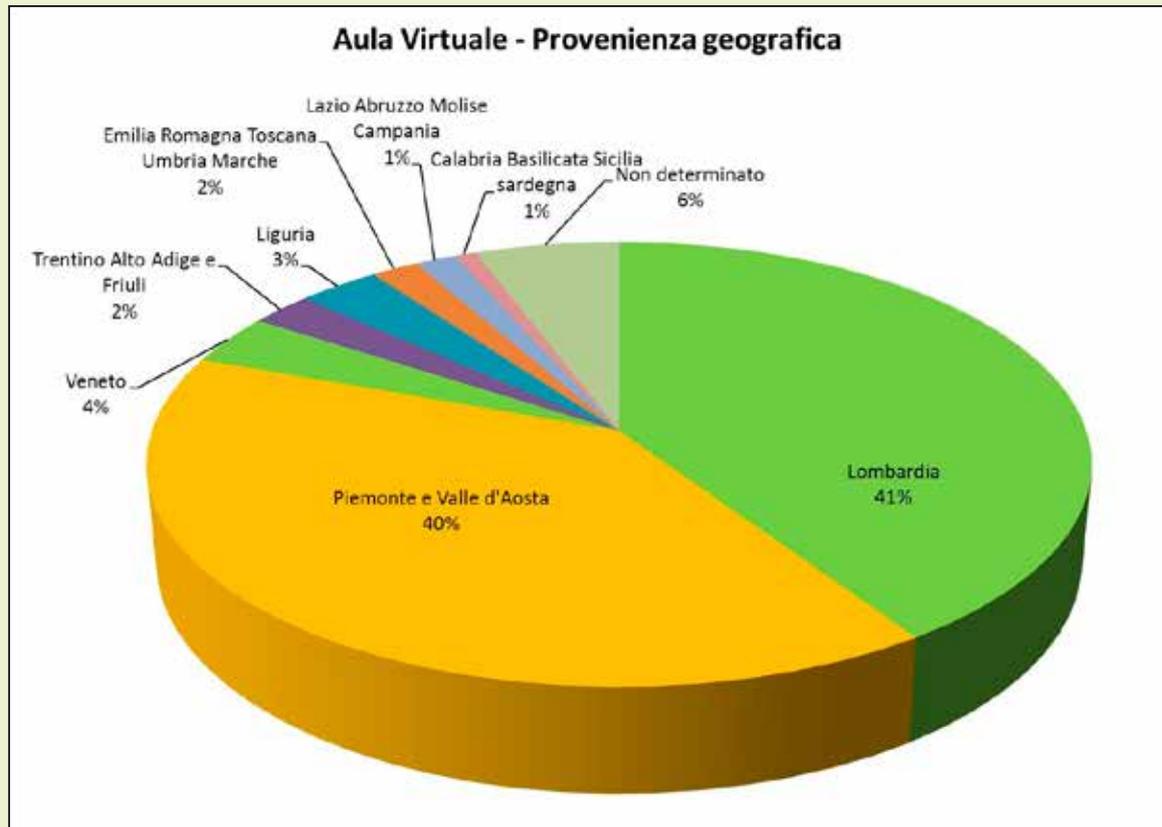


Figure 43: Virtual classroom - geographic origin of distance participants in the 2013 -2014 period.

seminars, published on the Multimedia Section of the Valmont website.

Seminars and conferences can be viewed more than once by connecting to this page <http://www.valmont.unimi.it/italiano/multimedia/multimedia.html> (where all the links to the recorded meetings organised at Edolo are published) and this has created a wide, freely accessible repository of video resources, contributing to a further dissemination and sharing of knowledge.

Seminars broadcasting via the web received a good feedback in terms of numbers of connections and appreciation received by the users who benefited from this opportunity. By analysing the number of ex post views of the recordings, since September 2013, on the basis of the number of accesses to each recording made available on the above-mentioned website, an indicative quantitative frame of the appreciation of the public can be made: there have been 3,029 views.

Since 2013, teaching experimentation activities through blended learning for institutional (university level and specialising) training activities have been launched.

The recipients have been:

- students of the bachelor's degree for the enhancement

and protection of the environment and the mountain areas;

- participants in the 2013 advanced trainings:
  - project management for the mountain: targeted and strategic planning;
  - programming and management of tourism in the mountains;
  - renewable energy sources in the mountains.
- participants in PSR 2007-2013 courses:
  - renewable energy sources in the mountains: use of the sun (photovoltaic and thermal systems);
  - renewable energy sources in the mountains: use of water and wind.

Two new training courses will be shortly available through e-learning and blended learning:

- the new and advanced version of the Advanced Training Course in Project Management for the Mountain (7 November 2014) in collaboration with the Alpine Convention, the Edoardo Garrone Foundation, Soroptimist, Valposchiavo Region, Switzerland.
- A Master's degree in the Enhancement and Protection of the Agricultural and Food Supply Chains of the Mountain, which is going through the final approval stages by the University of Milan.



The economic situation in Val Brembana is not very positive, and is characterised by a decreasing number of enterprises (and a decrease in new enterprises, too) and a low number of young entrepreneurs (only 6% is younger than 29). 92% of enterprises have max. 5 employees. Tourism in Val Brembana is mainly national (82% are Italian tourists; of which 85% come from Lombardy). What are the objectives to relaunch the area? Improve education and training policies in order to provide a better offer to young people and enterprises; improve local marketing activities to increase the attractiveness of the mountain area in the valley; increase the economic diversification to make the economic system more competitive.

In particular, these objectives were translated into three local actions:

- 1) training programme for eco-guides: organised by the "Eco-Museum" of Valtaleggio in order to train young people to work as guides for the museum. This and other training initiatives help local young people

have a chance to work and live in the mountain area;

- 2) widespread hospitality in the Ornica village: a new form of local marketing, which stimulates the promotion of local products, environmental education and the organisation of cultural events as well as the provision of job opportunities. It implies renovating traditional houses of Ornica to build and organise a widespread hotel with rooms located in different parts of the old village;
- 3) truffle cultivation in Bracca: the practice aims at strengthening traditional activities connected to picking and cultivating truffles in Bracca. A traditional rural activity can become a business opportunity for the local community, especially with respect to food tourism, by improving the use of local truffles in restaurants and creating a brand.

**Link:**

<http://www.euromontana.org/en/projets/padima-policies-against-depopulation-in-mountain-areas.html>

### Swot analysis on education and training in val Brembana

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>- Professional high schools offer courses connected with the main economic sectors in the area.</li> <li>- Vicinity to Bergamo University.</li> </ul>	<ul style="list-style-type: none"> <li>- Low rates of people with secondary and tertiary education level.</li> <li>- Few professional training for adults, especially in the tourism sector.</li> <li>- Low knowledge of foreign languages.</li> <li>- Difficult accessibility to high school for the students living in mountain villages.</li> <li>- Low employment rates (40,8% in the area, 44% in Lombardy).</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>- Demand for specialized workforce.</li> <li>- Initiatives to improve the connection between school and work.</li> </ul>	<ul style="list-style-type: none"> <li>- Decrease of young population.</li> <li>- Local economic system does not demand highly skilled (university level) workforce. Therefore, the phenomenon of "brain-drain" emerges: highly skilled young people move to other areas (Milano, Bergamo).</li> <li>- Low rate of students attending university (72,3% in Italy, 46% in pilot area).</li> </ul>

## Good practices

### Diversity4kids: learning intercultural dialogue and diversity at school through playful, interactive and narrative methods

(Italy: South Tyrol, Trentino, Friuli-Venezia Giulia, Austria: Tyrol)

#### Issues:

- Implement educational opportunities for young people in the mountains (e.g. primary schools in sparsely populated areas, professional schools to teach traditional activities, universities) to avoid emigration and brain drain.

#### Type of measure:

Pilot action (project: Diversity4Kids: Learning Intercultural Dialogue and Diversity at School through Playful, Interactive and Narrative Methods - Interreg IV Italy-Austria); Partners: EURAC (European Academy of Bolzano/Bozen), ZeMIT (Zentrum für Migrantinnen in Tirol), GECT- EUREGIO Tirolo-Alto Adige-Trentino, Centro Culturale Luciano Tavazza per il volontariato e la partecipazione in Friuli Venezia Giulia.

#### Funding:

EUR 320,881.

#### Background:

Over the past decade, migration has become part of everyday life in the areas involved in the project. Currently, children and teenagers live with foreign students as part of their ordinary school life much more than their parents did. Diversity is a challenge, but also an opportunity:

learning to deal with diversity at school prepares students for an increasingly globalised world, in which intercultural capacities and attitudes will become essential, more than ever, to achieve social and economic results.

#### Implementation:

The main good practice developed within the Diversity4Kids project is a didactic set of playful activities on anti-discrimination and diversity for children aged 8 to 14. Activities include improvisational theatre, role playing, creative writing, storytelling and biographical narrative. Another good practice is a set of indicators developed with headmasters and teachers to monitor and evaluate project activities. Within the framework of the project, teachers and intercultural mediators were trained to work with the Diversity4Kids game set and to successfully apply it in schools.

#### Indicators:

- increased awareness of the issues of diversity and anti-discrimination in children and teenagers aged 8-14 and in teachers;
- interest by teachers in organising playful school activities on diversity and anti-discrimination.

#### Transferability:

EURAC will transfer part of the Diversity4Kids project activities to some follow-up initiatives:

- Training programmes for teachers and people working with children will be offered in South Tyrol and Tyrol on how to perform DXK activities;
- Development of an App for smartphones and tablets on intercultural diversity and anti-discrimination.

#### Link:

<http://www.eurac.edu/en/research/projects/ProjectDetails.html?pmode=3&textId=6455&pid=11316>

## Good practices

### Rural learning regions – instruments to encourage lifelong learning (Austria)

#### Issues:

- relaunch local/regional competitiveness;
- create qualified employment to counter brain drain;
- implement educational opportunities for young people in the mountains (e.g. primary schools in sparsely populated areas, professional schools to

teach traditional activities, universities) to avoid emigration and brain drain;

- increase the knowledge of local trends and work out a strategy to develop the area and maintain existing services.

#### Type of measure:

- pilot action (project: regions learn);
- political measure: regional relevant stakeholders build a network, develop a strategy and define educational projects.

#### Funding:

A measure of the EU Rural Development Programme 2007-

2013: funded by the European Union and the Austrian Federal and Provincial Governments under LEADER.

### Background:

Learning regions are instruments aimed at encouraging and establishing knowledge management in rural areas. The goals are:

- To establish learning as a strategic regional focus;
- To develop and implement attractive education and training projects;
- To raise public awareness on learning;
- To open up new prospects for the region.

More than 140 projects, oriented towards regional strategies, are carried out in 39 regions. Project focuses are e.g. building regional know-how/identity, educational marketing, educational transitions, qualification initiatives, strengthening agriculture, improving youth employment, providing training for economic migrants and so on.

### Implementation:

The setting up and running of a strategic local and regional learning network is strongly linked to leader groups and so their actions are all aligned with the LAGs Local Development Strategies. The key elements of a learning region strategy are a survey of the current learning situation and definition of goals and focal themes for the region. Examples for projects in learning regions are as follows:

- Regional learning centres: educational institutions, the library, the museum, pubs etc. in a region work together to provide a location where people may spend their time learning. New target groups may be addressed.
- Generational learning - hands-on contemporary history: Students interview living survivors in the region about their experiences. The results are presented and

discussed in special events, exhibitions and publications.

- Competence portfolios help to reveal the regional skills trained in volunteer work, which is typical in rural areas.
- Learning focuses on selected target groups: immigrants, older people or people not used to learning are target groups that have specific educational needs which should be addressed by means of a variety of learning opportunities.
- E-learning and web 2.0: e.g. "Monday academy", where lectures held at universities are broadcast regionally and discussed locally.
- Cooperation for qualification: enterprises may work together to draw up qualification schemes and organize local further training courses held by experts.

"Knowledge creates the region" is a model to put together regional knowledge potentials (agricultural management, handicraft ...) and education and training centres (schools, research centres): the development of knowledge regions should increase their attractiveness especially for young people and support brain gain. A main issue is low-threshold access to know how and science, e.g. by means of learning festivals for people of all ages.

### Transferability:

The projects are implemented by particularly interested partners. The Austrian Institute for Adult Education has drawn up three manuals on learning regions, which provide detailed information on the development of a learning region (network building, strategy development and instruments for implementation).

### Link:

[www.lernende-regionen.at](http://www.lernende-regionen.at)

## 4. APPLICATIONS ON DEMOGRAPHIC AND LABOUR MARKET DATA

### 4.1 POPULATION AND LABOUR MARKET TRENDS IN THE ALPINE AREA

With respect to demography and the labour market and for many other characteristics, the Alpine area is a kaleidoscope of very diverse situations; therefore, the Alps as a whole include sometimes extremely relevant differences.

To provide an easy-to-understand overview of this complex and colourful picture, methods and tools like synthetic indices can be applied, which summarise in a single average value the multiplicity of typical values of each different micro area. Among these instruments, the MPI is a composite index summarising the values of several indicators measured on a certain number of statistical units. A unique classification of the units (in this report, municipalities) can be drawn based on this index values.

The score given to each municipality is an average of the standardised values for the different indicators. Moreover, the MPI index (see a more detailed description in Methodological Appendix – annex C) includes a penalty function in its formula to take into account the presence of “horizontal” variability, i.e. variability among those values.

To measure demographic and labour market trends in the Alps the MPI composite index has been applied to a set of eight demographic and labour market indicators, calculated in each of the 4,700 Alpine municipalities<sup>14</sup> included in the analysis. The chosen indicators are: foreign resident population (per 1,000 residents), population density, crude birth rate (per 1,000 residents), population growth rate (per 100 residents), working-age total resident population (per 100 residents), employment rate (per 100), unemployment rate (per 100), variation in employment rate. The subset of indicators included, derived from the wider set of the available indicators, has been defined trying to keep those that are more significant and cannot be replaced, while preserving a certain balance among the two main investigated aspects (demography and labour market). All the indicators are static and they are calculated on the basis of the most recent available data (usually year 2012), except for population growth and the variation of the employment rate, which are dynamic and refer to data available for the past ten years. The main results (figure 44) of the study are listed below. Municipalities with high MPI values are the most dynamic.

Among them: Alto Adige/South Tyrol, Aosta Valley, the valley floors of the Adige Valley, the Garda area (in Italy), High Savoie and High Maurienne Valley (in France), the Inn and Salzach Valleys, a further part of Tyrol, swathes of Vorarlberg, municipalities in the area of Vienna, Graz and Klagenfurt (in Austria). The highest index values were recorded in the municipalities of Saint-Christol (FR, 118.1), Sivergues (FR, 116.6), Mäder (AT, 114.1), Val-de-Chalvagne (FR, 112.5), Hall in Tirol (AT, 112.0), Lavant (AT, 111.6), Ampass (AT, 111.3), Hard (AT, 111.2), Altagh (AT, 111.0) and Zirl (110.8). Among less dynamic municipalities (with lower MPI values) there are: Maritime Alps (in France), municipalities along the border between Tyrol and Vorarlberg, in Upper and Lower Tauern and in the Lower Austrian-Styrian Limestone Alps (in Austria), the municipalities on the border between Austria and Slovenia, between Italy and Slovenia and west of Turin. In the last positions of the ranking with the lowest MPI index we find Gars (FR, 77.1), La Bâtie-des-Fonds (FR, 75.6), Auelon (FR, 75.6), Chanousse (FR, 75.5), Oulles (FR, 74.8), Blioux (FR, 73.7), Saint-Léger (FR, 69.15), Montferrand-la-Fare (FR, 67.34), Lesches-en-Diois (FR, 64.3), Vérignon (FR, 63.1).

The municipal values of the MPI are depicted in figure 44. On the map, more intense colours correspond to higher MPI values.

### 4.2 CLASSIFICATION OF THE ALPINE MUNICIPALITIES IN TERMS OF THEIR DEMOGRAPHY AND LABOUR MARKET

Considering the most relevant demographic, economic and social variables, the principal components were analysed and a cluster analysis was applied as well, for a more detailed assessment and a better classification of the diverse situation of the Alps with respect to the specific values in each territorial unit. The analysis is based on nine variables. With respect to the demographic analysis, the following was taken into account: population density, population growth (in ten years), natural balance, elderly population (per 100), foreign residents (per 1,000 residents). The following socio-economic variables were included: employment rate, change in employment rate (in ten years), unemployment rate and population with tertiary education.

14. Not including German, Swiss and Lichtenstein Alps.

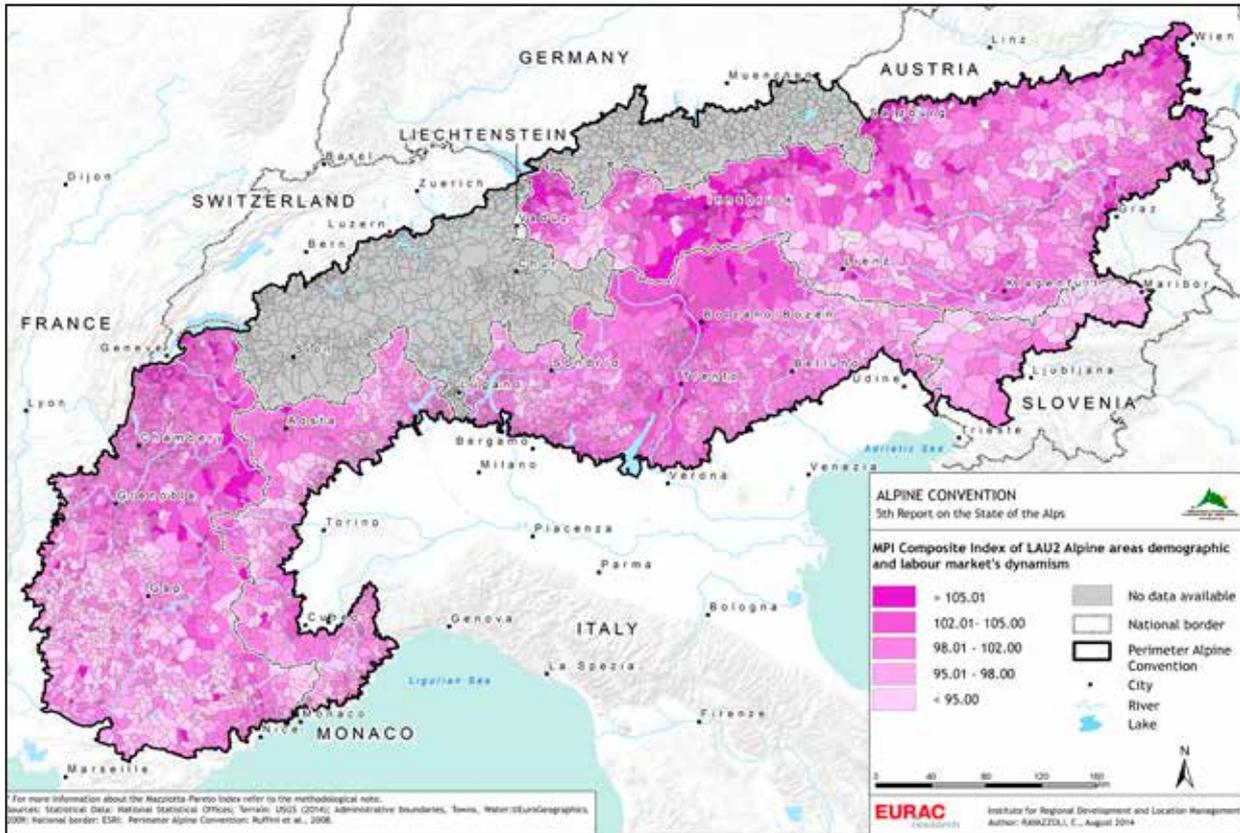


Figure 44: MPI Composite Index Values of demographic and labour market trends in LAU-2 Alpine areas.

A map of patterns and trends (figure 45) in the approx. 4,700 municipalities considered (not including German, Swiss and Liechtenstein Alps) has been drawn.

Focusing our attention on groups of municipalities, we can analyse the Alpine area from a local viewpoint. Based on the results of the cluster analysis<sup>15</sup>, six groups of municipalities were selected having peculiar characteristics when compared to the general average<sup>16</sup>. On the map, the six groups of LAU 2 units have been represented with different colours.

The first group of municipalities can be defined as the group with a good labour market (1,258 municipalities). Compared to the general average, it features a higher employment rate and a positive change in this indicator (over ten years); the overall positive situation is further demonstrated by

a lower unemployment rate. From a strictly demographic point of view, population density, the share of foreigners, of elderly people and of people with a high level of education are lower values than the general average. The population growth over ten years is slightly positive compared to the general average. The main areas in this group are: a large part of the Alpine Austrian municipalities, Alto Adige/South Tyrol, Aosta Valley, the tourist area of Savoie (Maurienne Valley), the Mont Blanc area, the Arve Valley (in France) and the hills west of Ljubljana.

The second group can be defined as the group with a high share of the elderly population (1,117 municipalities). It is characterised in particular by the highest value of this indicator versus the general average. In addition, a lower employment rate and share of people with a high level of education are observed. The population growth in ten years

15. The first three axes resulting from the application of the principal components analysis explain more than 70 % of total variability.

16. In this respect, it is worth noting that the characterisation of each group of municipalities based on the application of multivariate analysis methods such as principal component analysis followed by a cluster analysis is aimed at providing an overview of the different municipalities to highlight only their main characteristics. As a matter of fact, talking about the characterisation of each group in terms of the original indicators, the approach only takes into consideration the most relevant characteristics shared by the units in a group. Furthermore, the cluster description is often based only on the subset of these characteristics that mainly differentiate the specific group from other groups. This does not necessarily mean that a municipality in a group is characterised only by the variables that characterise the group. This is true for "positive" (such as, for example, employment) and "negative" features (such as, for example, depopulation).

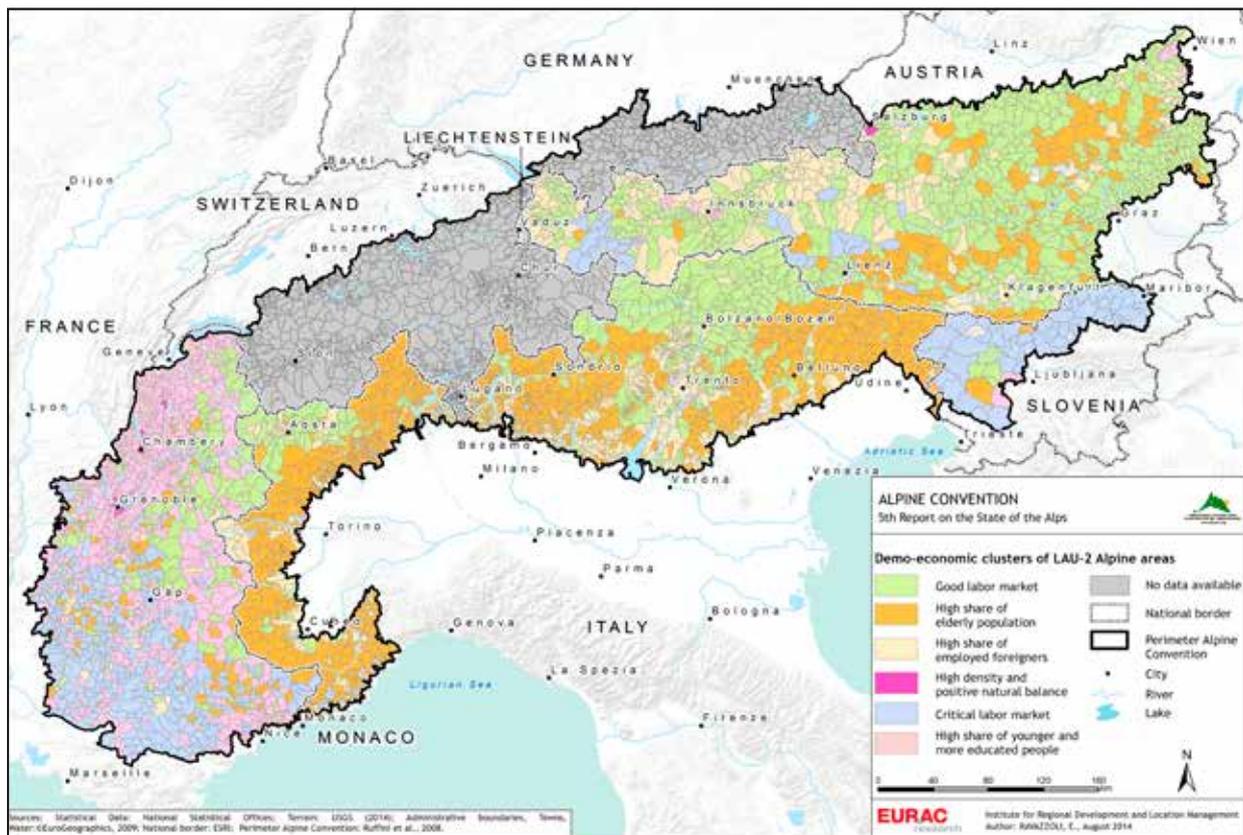


Figure 45: Demo-economic clusters of LAU-2 Alpine areas.

is negative and the natural balance is strongly negative; the high share of elderly population presumably plays an important role in defining the demographic situation of this group. The main areas in this group are: a large part of the Italian Alps (Liguria, Piedmont, Veneto, the south-east and western part of Trentino, Friuli-Venezia Giulia and the provinces of Como, Lecco, Sondrio and Bergamo), the Lower Tauern and the Lower Austrian-Styrian Limestone Alps (in Austria), Idrija in Slovenia.

The third group "*High share of foreigners*" (758 municipalities) is characterised in particular by a higher share of foreigners and a higher population density. The share of people with a high level of education is smaller and the employment rate is similar to the general one. The main areas in this group are: large parts of Trentino, different peri-Alpine municipalities – most of the municipalities belonging to this category are tourist resorts or peri-Alpine municipalities not far from the main towns of the Po plain with high foreign population rates – and the High Susa Valley (in Italy), parts of Vorarlberg, the upper part of secondary valleys in Tyrol, Salzburg and central Carinthia (in Austria).

The fourth group "*High density and positive natural balance*" is quite small compared to the other groups (27 municipalities). Population density is really high and a clearly positive balance

is observed. The proportions of foreigners and people with tertiary education are quite high. On a negative side, the unemployment rate is higher than the general average. The main areas in this group are: the Salzburg area (in Austria), Grenoble, Annecy, Aix-Les-Bains (in France).

The fifth group "*Critical labour market*" (530 municipalities) is characterised in particular by a high unemployment rate, a low employment rate and a small variation in this latter indicator (over ten years). The proportion of elderly people and of the population with tertiary education is quite high. The population growth in a ten-year period is more positive than the general one. The main areas in this group are: a large part of the Slovenian Alps, the border area of Tyrol and Vorarlberg and parts of the Upper Tauern Valley (in Austria), several municipalities of the Maritime Alps (in France). In some of these areas the critical labour market situation could be connected to accessibility issues.

The last group "*High share of younger and more educated people*" (1,008 municipalities) is characterized by a high share of people with tertiary education, whereas the values of the elderly and foreign population are lower than the general average. Population growth and natural balance are strongly positive. The employment rate is higher and the change of this indicator is positive. This group appears to be

rather dynamic from a demographic and labour market point of view. The main areas in this group are: some municipalities in the Maritime Alps (in France), the areas near Vienna and Innsbruck, municipalities south of Ljubljana, the north-eastern French Alps.

The cluster analysis confirms that, in terms of micro areas,

there are still huge differences in conditions and trends with respect to population and demography, and to the labour market. These differences in some cases go beyond national boundaries. In other cases, however, they are clearly defined and delimited by national or even regional boundaries, highlighting the significance of policies to guide specific developments.

## Good practices

### Observatoire du Mont Blanc & Wikialps (France – Italy – Switzerland)

#### Issues:

- increase the knowledge of local trends and work out a strategy to develop the area and to maintain existing services.

#### Type of measure:

Pilot action (project PIT H2 *Camp de base de l'Espace Mont Blanc*).

#### Funding:

Both projects are co-funded by the European Regional Development Fund within the framework of the Alcotra 2007-2013 Programme (first project) and the Alpine Space Programme (second project).

#### Background:

The Mont Blanc Observatory (MBO) has been created on behalf of the *Conference Transfrontalière Mont Blanc* as a tool to support its sustainable development policy. With 32 indicators, the observatory aims to be the key monitoring tool for the spatial development of a strategic cross-border area and to help local communities to realise new projects that are more connected with the local situation.

#### Implementation:

The Mont Blanc Observatory is now part of the

“WIKIAlps” Alpine Space project which aims at providing the EU Commission with an analysis of the main results achieved with AS projects regarding the fields of “inclusive growth” and “resource efficiency & ecosystem management”.

Through WIKIAlps, the observatory will improve its ability to respond to the needs expressed by municipal and regional public bodies, concerning the knowledge of demographic, social and economic trends. Using a set of complementary tools and a series of scientific audits, the MBO will support decision makers and civil servants to design and implement policies, strategies and actions for the sustainable management of the Espace Mont-Blanc area.

#### Indicators:

- Number of indicators (32 at the moment, divided between demographic, social, economic and environmental fields).
- Use of audits to make decisions: number of best practices.

#### Transferability:

The Aosta Valley Autonomous Region and Fondazione Montagna sicura are participating in WIKIAlps with the purpose to test the MBO's possible synergy with other similar experiences. The technical solutions designed for the MBO can be shared and transferred within the group of WIKIAlps international partners with the objective to disseminate information and data to public administrators and stakeholders regarding one of the most complex Alpine areas.

#### Link:

<http://observatoire.espace-mont-blanc.com/>  
<http://www.sycoemb.eu/>

## Good practices

### Project Comunis: Passeier 2020 - towards a vision of an inter-municipal commercial location development for an alpine valley (Transnational – Alpine Space Project)

#### Issues:

- improve local/regional competitiveness;
- increase the knowledge of local trends and work out a strategy to develop the area and maintain existing services.

#### Background, implementation and pilot activities:

The project COMUNIS was carried out from 2009 to 2012 within the framework of the ETC Alpine Space Programme.

A short-term response for individual business demands is a common commercial development strategy of municipalities. What is often missing is a concerted, long-term strategy developed together with other municipalities – a so-called ‘inter-municipal location’ – aimed at using vacant commercial buildings or already designated land and at adding value to the regional endogenous potential. Against this background, COMUNIS developed cooperative strategies for inter-municipal Commercial Location Development (CLD). By raising awareness of the benefits of inter-municipal cooperation, COMUNIS aimed at overcoming individualistic problem solution attempts by individual municipalities. The guidelines to draft and apply inter-municipal CLD strategies were adapted to the specific challenges, conditions and potentials of the project’s pilot areas, also taking into account the general local conditions of mountain regions.

In the Autonomous Province of Bolzano - South Tyrol, the project was carried out in the Passeier / Passiria Valley and in the municipality of Tirol. This narrow side valley is located north of Meran, bordering the Ötztal Valley (Austria) via the Timmelsjoch / Rombo mountain pass and the Wipp Valley (Alta Valle Isarco) on the South Tyrolean side via the Jaufen / Giovo mountain pass. The Passeier Valley pilot area includes six municipalities

with a population of about 13,000 inhabitants, more than 4,500 households and more than 1,500 registered companies. It stretches over ca. 25 km, the surface area is ca. 376 km<sup>2</sup> with a varying degree of permanent settlements, according to the mountainous topography. Access to the Passeier Valley is difficult and limited. The main road is winding and narrow. Access to the valley via the mountain passes is restricted for heavy traffic leading to a high traffic volume in and around the city centre of Meran, from which the valley can be accessed. Approx. 3,000 people commute within the pilot area or outside of it (e.g. to the economic centre of Meran); 12,000-15,000 cars per day; 10 % heavy traffic; 1,164 motorcycles drove on 16.08.2011 towards or across the Jaufenpass / Giovo mountain pass; on the same day, 808 motorcycles drove towards or across the Timmelsjoch / Rombo mountain pass (ASTAT, 2011). This leads to congestion especially at peak times and is a source of noise pollution in many of the pilot area’s villages.

The local economy is mainly based on small-scale industrial and manufacturing companies (in particular construction, crafts) and tourism (e.g. Moos in Passeier / Moso in Passiria is a so-called Alpine Pearl<sup>17</sup>). Ca. 95% of companies have between one and nine employees. Inter-municipal cooperation (IMC) is already good (joint administrative units, business consortia, etc.) and there is a willingness to expand and strengthen this cooperation. EURAC research follows the CLD five-step process as outlined in the guidelines<sup>18</sup> of the COMUNIS project to develop a vision of inter-municipal CLD in the Passeier Valley:

1. Context description: local stakeholders define the main challenges in the pilot area (accessibility of the valley, heavy traffic volume, awareness raising with respect to IMC, reuse of vacant buildings, commercial zones and unfinished buildings).
2. Analysis: the following three core fields were analysed to assess the specific situation of the pilot area:
  - Location profile: accessibility; economy; labour market; human resources; image.
  - Inter-municipal cooperation: intensity of existing cooperation; stakeholders’ attitudes and expectations; political and legal framework.
  - Management of commercial land use: availability and use of land; spatial framework conditions; land prices.

17. <http://www.alpine-pearls.com/en/>

18. COMUNIS Project Consortium (2012). *Intermunicipal Cooperation for Strategic Steering of SME-oriented Location Development in the Alpine Space - Project Synthesis*. 34 p. Available on [http://www.comunis.eu/downloads/COMUNIS\\_Synthesis\\_Booklet\\_EN.pdf/view](http://www.comunis.eu/downloads/COMUNIS_Synthesis_Booklet_EN.pdf/view)

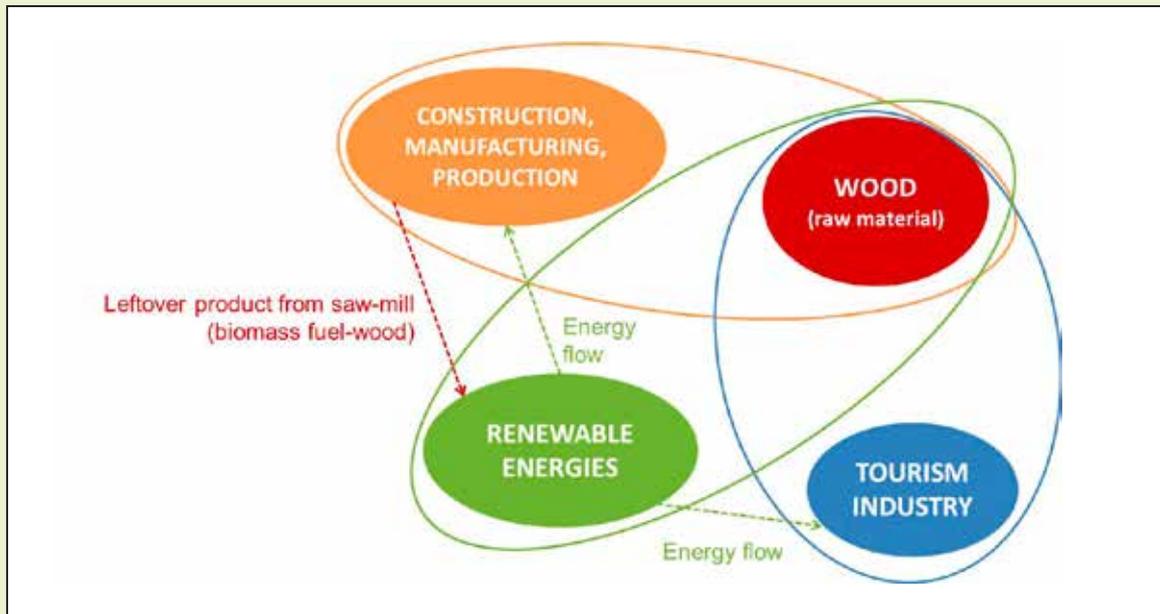


Figure 46: Selected regional potentials (sector-related) and their interrelation: possibilities for increased cooperation in the Passeier Valley.

The Balanced Scorecard<sup>19</sup> (BSC) was used for the analysis, since it helps visualize the status quo of the above-mentioned issues in a diagram and illustrates possible developments. The results of the BSC analysis were further evaluated by analysing strengths, weaknesses, opportunities and threats (SWOT analysis), to then define regional potentials.

This step resulted in an inter-municipal profile with an overview of the existing inter-municipal cooperation (for CLD and other municipal tasks) and of the framework conditions for (inter-municipal) management of commercial land use. The core economic activities of the pilot area were identified and further discussed and analysed with local stakeholders.

3. Development: on the basis of the identified potentials (figure 46), possible developments for the pilot area were devised, innovative solutions developed and recommendations formulated.

4. Implementation: taking into account already existing cooperation facilities between municipalities and between businesses, the developed strategy (the chosen development path) was implemented with local stakeholders, making recommendations to organisational facilities and rules to regulate cooperation.

5. Evaluation: a periodic review of strategy and development will show the progress made. Additionally, the BSC can be applied again and compared to an earlier version.

In general, the framework conditions and the political objectives for the future inter-municipal development reflect EU's priorities set for the year 2020 (green growth for functional areas and green jobs; use of renewable energy resources). They are also in line with the objectives and strategies of the Autonomous Province of Bolzano-South Tyrol (strengthening IMC by using joint structures; preserving mountain municipalities jeopardised by emigration; reaching CO<sub>2</sub> neutrality; increasing regional added value) and reflect the objectives of the Business Location Südtirol-Alto Adige agency (define an economic focus in small regions to develop functional areas; limit further land use for commercial/industrial purposes), responsible for business settlement and location marketing in South Tyrol.

The inter-municipal objectives in the Passeier Valley are:

- Increase the distribution and use of renewable energy sources.
- Strategic use of (available) commercial resources for future business settlements.
- Increase regional added value by closing regional economic cycles.

19. The Balanced Scorecard method is a strategic performance tool used, for example, to assess an organisation's or a structure's performance.

- Integrate regional strengths in location marketing activities.
- Increase the quality of life to locally keep population and workers.

Considering the above on the basis of the location profile, three possible development paths have been identified: the expansion of the woodworking industry and its relation with other sectors, the increased production and use of renewable energies (e.g. hydropower, biomass), and the integration of tourism and agriculture.

The field of action "wood" shall be examined in more detail (figure 46). Due to existing business and forest owners cooperation and organisation in the wood sector and given the high number of woodworking companies, one objective is to further enhance this industry in the Passeier Valley<sup>20</sup>.

Possible measures to reach the targets of inter-municipal cooperation and cooperation between companies are as follows:

- Investment in innovative objects design (e.g. furniture, toys, public/private construction, etc.).
- International competitions to attract external innovations (architects, designers, planners) and attention towards the area.
- Installation of a new sawmill or extension of the existing facility in the valley to process and store local wood.
- Identification and settlement of businesses and services that are missing in the local wood value chain to attain a higher degree of processing (e.g. biomass (fuel wood) as a raw material for renewable energy).
- Following the idea of creating a "wood world" in the

valley to raise population and visitors' awareness for local wood and to present possible uses of wood (e.g. also in public or private buildings).

- Use of existing forest owners' and entrepreneurs' working groups to follow up on these activities.

Other fields of action were identified for which recommendations were developed: in general, setting up regional value-added partnerships with the inclusion of economic partners and public/administrative stakeholders is suggested for all fields of action. In order to meet the increasing demand for local/regional products by tourists and the local population, tourism should be further integrated with agriculture and add value to agricultural products, also developing innovative forms of tourism and hotel cooperation. Launching an inter-municipal cooperation campaign and informing on the advantages and disadvantages of IMC can help abandon prejudices against cooperation across the municipal borders. Business surveys should be regularly carried out to verify land demand for commercial purposes in all municipalities and to offer incentives for the use of abandoned existing industrial/commercial facilities. It is also advised that a discussion is initiated in companies on inter-business logistics to improve commuter accessibility and mobility and to coordinate traffic in the valley. The extension of intermunicipal and interagency cooperation in training and secondary school education should be followed up to increase young people's awareness of handicraft and other professions and to preserve traditional professions and production methods.

**Link:**

[www.comunis.eu](http://www.comunis.eu)

20. Structured evaluation of the outcomes of the Workshop "Quo Vadis Passeiertal?" held on 03.02.2012 at EURAC Bozen/Bolzano.



## 5. POPULATION AND SERVICES

Welfare conditions and perspectives are rapidly changing in Europe and in the Alps. These changes are both a cause and a consequence of the broader demographic changes and new population trends, which are generating great challenges when programming and defining of adequate welfare and service solutions to the upcoming needs. The increase in the share of the older population, generally visible in the Alps level, is combined with the expectation that, in the future, an increasing number of older people will be living alone, and informal care from other household members will not be available. Moreover, the increased participation of women to the labour force will also play an important role in the reduction of the supply of informal care. As a consequence, improving professional social care and support for independent living is rapidly becoming a priority. The future health status of the population will depend to a large extent on current health behaviours (European Commission, 2006).

The age of the resident population plays a key role in determining welfare levels and social conditions. This issue has already been tackled in chapter 2, where table 4 shows the ageing index, namely the ratio between people over 65 and under 15, highlighting the number of persons of retirement age for every hundred children and adolescents. This figure defines the relationship between the two non-working sections of the population: those who are no longer working and the young people who will be working in the future. As a consequence, it clearly shows what kind of demographic trend a municipality is likely to experience and what kind of infrastructure (e.g. schools and facilities for elderly care) will be needed there in the future. Although this situation is present in all European countries, population ageing is particularly evident in the Alps, especially in the core Alpine area; this calls for an in-depth investigation of the way in which services for the population will have to be provided in the future.

### 5.1 HEALTH CARE FACILITIES

Health is an important priority for the European society, which expects to be protected against illness and disease. Nevertheless, the health status of a population is difficult to measure, since it is hard to find a common definition

among individuals, population, cultures, or even across time (Eurostat, 2010). Moreover, health indicators are strictly related to the concept of “quality of life”.

In general, mountain areas suffer from great inequality concerning the supply of social and medical care. With respect to access to healthcare, the mountain *milieu* is certainly characterised by its specific geography. It would be hazardous not to distinguish between the health problems of the population living in tourist and industrial valleys, which can count on several communication facilities and are relatively favoured with respect to healthcare supply, and mountain populations characterised by widespread settlements, isolated villages and lower accessibility.

Health systems – i.e. institutions and actions whose primary purpose is to promote, restore, or maintain health (World Health Organisation, 2000) - are increasingly recognised as key to fighting disease and improving population health. The number of beds in the health care services needed in a country depends on many factors, including the patterns of disease and the availability of alternative care settings.

In order to analyse the availability of health services, the number of hospital beds for ordinary admissions (hospital beds used for admissions for at least one night) per 1,000 people can be considered. This indicator reflects demand and supply-side factors and the extent of physical, financial and other barriers to health care (World Bank, 2013). This indicator of the availability of health care services, which compares hospital capacity and the general population is often used for international and intranational comparisons. In order to compare these indicators among municipalities in the Alps, dataset should be defined according to the health account system<sup>21</sup> (World Health Organization, 2011), where hospital beds are both public and private, are regularly maintained, staffed and immediately available for the care of admitted patients<sup>22</sup>. One of the main emerging trends, in Europe and in the Alps, is the decrease of hospital beds available for citizens. A considerable share of the observed reduction in hospital beds is likely to have been caused by a reduction drop in the length of hospital stay (e.g. Italy has the highest rates of short stays and “day hospital” cases). Another reason is the arising of financial constraints during the 1990s, which have led to a rationalisation of health care services everywhere (Alpine Convention, 2012). The increased

21. Since 2006 OECD, EUROSTAT and WHO have worked intensively to revise the System of Health Accounts with the expertise and inputs of health accountants across the globe. This process culminated in the publication of a new manual in October 2011: SHA 2011.

22. It includes: Beds in all hospitals, including general hospitals, mental health and substance abuse hospitals, and other specialty hospitals; occupied and unoccupied beds. It does not include: provisional and temporary beds; beds in nursing and residential care facilities.

demand for health care for the elderly, many of whom are suffering from chronic disability and diseases, has in most cases been met by transferring beds from acute or psychiatric care to long-term care, while total numbers are still declining (Eurostat, 2006). This trend is particularly clear in the Italian part of the Alpine arc.

Distance is the most important factor for patients when choosing a hospital (Tappeiner et al.; 2008), distance in terms of space and time to the nearest hospital is an important indicator of medical provision and of the ability of patients to recover. The distribution of ambulance stations, whether

central or decentralised, the availability of an air ambulance or the technical equipment of the ambulance stations are further factors. However, short access distances or travel times remain the most important factor. In an area that is relatively poor in health practitioners, mountain populations experience some new difficulties to access specialised and technical health care. In case of emergencies, general practitioners and pharmacists could be the only available resource with considerably larger responsibilities than their urban colleagues (Smirou, 1984). For more details on hospital accessibility, see the theme analysis "Focus report on hospitals in the Alpine area".

## National contributions

### AUSTRIA

Generally speaking, in Austria health care is strongly concentrated in hospitals: compared to other European countries, Austria is among the leading countries in the number of hospital beds, hospital admissions and physicians.

In Austria, medical health care – provided by hospitals and family doctors – differs only slightly between Alpine and non-Alpine regions.

Although the majority of hospitals is located in Alpine regions (140 to 128), the number of hospital beds per 1,000 residents differs slightly (7.6 beds per 1,000 in Alpine regions, 7.9 in non-Alpine regions).

Another minor difference is seen for general practitioners: there are 74 family doctors in private practice per 100,000 residents in Alpine regions, and some more, 79 family doctors, in the non-Alpine area of Austria.

	Alpine area	Non-alpine area	Austria total
Hospitals	140	128	268
Hospital beds	25,262	40,075	65,337
Hospital beds per 1,000 residents	7.6	7.9	7.8
General practitioners in private practice ("family doctors") per 100,000 residents, year 2013	74	79	77

Table 45: Health care indicators for Austria, 2011 and 2013.

### FRANCE

The French Alps can be considered well equipped in terms of medical facilities, even though mountainous areas mean longer road distances and time to get to these facilities. The number of general practitioners, of short and long-term medical and residential care facilities per 1,000 residents is very close to national rates. This is, in part, due to the presence of many non-permanent residents during holidays in the most tourist areas.

	French Alps	France
% of population more than 30 minutes from short-term hospital	5.1	1.3
Number of general medical practitioners per 1000 residents	11	10
Long-term residential care facilities*	30	*
% of population more than 30 minutes from long-term residential care facilities	12.3	6.5

Table 46: Health care indicators for France, 2010. \* the number of beds in these facilities is not available.

## ITALY

The Italian Health System is mainly public (there is a National Health System) and it is regionally based: the 19 regions and 2 autonomous provinces have responsibility for the organisation and delivery of health services through local health units. Each region has great autonomy in the definition and organisation of its regional health care system, so this dataset can only be analysed taking into consideration the regional perspective.

The number of beds is an aggregation of beds for different kinds of specialty care and may mask deficiencies in certain areas. The number of beds is a very poor measure of the status of a health system as a bed only contributes to health care if it is supported by an appropriate mix of staff and equipment (McKee, 2003). A hospital can serve many patients who live outside of its municipality, sometimes in neighbouring areas.

In recent years, hospital demand and supply indicators have been decreasing in all Italian regions, and many actions were initiated through national (Patto per la Salute - triennio 2010-2012 Health Covenant – 2010 - 2012 [http://www.salute.gov.it/portale/temi/p2\\_6.jsp?lingua=italiano&id=1299&area=programmazioneSanitariaLea&menu=vuoto](http://www.salute.gov.it/portale/temi/p2_6.jsp?lingua=italiano&id=1299&area=programmazioneSanitariaLea&menu=vuoto)) and regional laws, to improve an integrated network of prevention, inpatient and outpatient care. When planning health care facilities for 2012-2014, the government decided a reduction of hospital beds in all regions, which is expected to be 3.7 beds per 1,000 inhabitants (0.7 for rehabilitation and long-term care beds) (National Act 135/2012).

In 2010 the national average was 3.7 per 1,000 inhabitants: the availability of hospital beds in regions with Alpine municipalities was higher than in the other regions (3.9 per 1,000 vs. 3.5 per 1,000 people) (see table 47).

Regions	N° of hospital beds (absolute values)	Population average - 2010	N° of hospital beds, per 1,000 people
Regions with alpine municipalities	88,293	22,786,458	3.9
Regions without alpine municipalities	128,293	36,490,958	3.5
Italy	216,586	59,277,416	3.7

Table 47: Hospital beds per 1,000 residents in regions with and without Alpine municipalities – Italy - 2010.

Considering Alpine municipalities in Italy, there are hospital beds in five of the six regions (Friuli-Venezia Giulia, Lombardy, Piedmont, Aosta Valley and Veneto. Liguria is the only region without hospitals in the Alpine municipalities) and in two autonomous provinces (Bolzano and Trento), with 12,384 hospital beds serving 4,339,637 residents: the rate is 2.9 per 1,000 inhabitants. Hospitals in Alpine municipalities have lower beds per inhabitants than the other municipalities in the same regions (4.2 per 1,000 residents) (see table 48)

Regions with alpine Municipalities in Italy	Alpine Municipalities			Other Municipalities		
	N hospital beds	Population average	Number of hospital beds (per 1,000 residents)	N hospital beds	Population average	Number of hospital beds (per 1,000 residents)
Piemonte	2,510	874,378	2.9	15,014	3,488,797	4.3
Valle d'Aosta	480	126,724	3.8	0	0	-
Lombardia	2,689	1,280,325	2.1	35,512	8,352,087	4.3
A. P. Bolzano - Südtirol	2,038	500,065	4.1	0	0	-
P. A. Trento	2,189	520,641	4.2	0	0	-
Veneto	1,860	1,255,239	1.5	15,584	3,591,707	4.3
Friuli Venezia Giulia	618	218,111	2.8	3,816	1,003,098	3.8
Liguria	0	84,796	-	5,983	1,490,492	4.0
Total	12,384	4,339,637	2.9	75,909	17,926,180	4.2

Table 48: Hospital beds per 1,000 residents in regions with Alpine municipalities - Italy- 2010.

In Liguria there are no hospitals for the residents in the Alpine municipalities, but there are 4 hospital beds per 1,000 people in the other municipalities. Even in the other four regions there are fewer hospital beds in Alpine municipalities than in the rest of municipalities (Piedmont 2.9 per 1,000 inhabitants, Lombardy 2.1 per 1,000 inhabitants, Veneto 1.5 per 1,000 inhabitants vs. 4.3 per 1,000 inhabitants and Friuli- Venezia Giulia 2.8 vs. 3.8).

The developed world's population is ageing, due to increased life expectancy and decrease in fertility rates. These demographic changes increase the share of old and very old people, leading to new patterns of morbidity and mortality, with an increasing number of degenerative and often multiple and chronic diseases. These trends predict an increase in the demand for long-term care (LTC).

LTC is usually provided to persons with physical or mental disability, the elderly and people who need support to conduct their daily life and seem unable to care for themselves without some help. LTC includes a variety of medical and non-medical services for people with chronic diseases, physical or mental disabilities.

In Italy, as in other countries, rapid population ageing is accompanied by the recent evolution of the National Health Service (NHS) which prompts policy makers to further analyse long-term services in order to adopt specific strategies to meet increasing health needs and future expenditures connected with ageing.

In Italy, long-term residential care facilities provide also health care services.

In 2011 in Italy there were 7,119 long-term residential care facilities with 281,082 beds (4.7‰ inhabitants). 46% of long-term residential care facilities were in the Alpine regions (3,261 facilities) with 162,198 beds (12‰ inhabitants) while in the selected Alpine municipalities there were 892 of these residential facilities (12.5% of Italian residential facilities) with 41,185 beds (10‰ inhabitants). The indicators show more supply of long-term residential care facilities in the Alpine municipalities in comparison with other Italian regions. Number of patients in these facilities are higher for all age groups in the Alpine municipalities than in the whole of Italy, but are lower than those calculated in the Alpine regions. Patients aged 0-17 are 0.6‰ inhabitants (0.6‰ inhabitants in Italy and 0.9‰ inhabitants in the region), adult patients account for 1.9‰ inhabitants (1.3‰ inhabitants in Italy and 2.8‰ inhabitants in the region). The level of elderly patients is the highest, due to the specific selection of residential LTC facilities, and to the ageing process explained in the introduction. Elderly patients account for 37.8‰ inhabitants (17.5‰ inhabitants in Italy and 47.2‰ inhabitants in the region) and those aged 80 years and over account for 59.2‰ inhabitants (43.9‰ inhabitants in Italy and 124.4‰ inhabitants in the region).

General practitioners (GPs) treat acute and chronic illnesses and provide preventive care and health education to patients.

GPs are generally focal points of primary care, a level of care affected by many reforms and changes over the past 30 years, basically based on<sup>24</sup>:

- the introduction of general or family medicine as a medical specialty in some countries;
- the encouragement to establish group practices;
- the encouragement of teamwork between different health professionals; delegating tasks traditionally carried out by physicians to nurses and paramedics;
- the introduction of additional payment for particularly desirable services (for instance, immunisation) and partial capitation payment to supplement fee-for-service;
- an increase in the range of services provided by primary care professionals (e.g. community-based mental health services and minor surgeries);
- strengthening of its gate-keeping role (e.g. by assigning budgets to primary care providers to purchase services for their patients; by introducing the "money follows the patient" principle; or by restricting access to secondary and tertiary care without referral).

The role of a GP can vary greatly between countries because of the different organisation of the health care systems. LHUs deliver primary care, hospital care, public health, occupational health and health care related to social care<sup>25</sup>.

24. WHO, Regional Office for Europe, <http://www.euro.who.int/en/health-topics/Health-systems/primary-health-care/data-and-statistics>.

25. The Commonwealth Fund, *International Profiles of Health Care Systems*, 2012, November 2012.

Region/ LHU code	LHU name	Number of Alpine Municipa- lities	General doctors	General Pediatri- cians	Total GPs	Rate per 10,000 residents
PIEMONTE			3,335	445	3,780	9.2
010203	TO3	80	431	64	495	9.5
010204	TO4	68	372	62	434	9.8
010206	VC	38	137	16	153	9.3
010207	BI	54	133	15	148	9.2
010208	NO	5	246	33	279	8.8
010209	VCO	82	130	15	145	8.5
010210	CN1	129	299	43	342	8.3
010211	CN2	27	116	16	132	8.2
VALLE D'AOSTA			90	18	108	8.4
020101	AOSTA	74	90	18	108	8.4
LOMBARDIA			6,504	1,154	7,658	8.5
030301	A.S.L. DELLA PROVINCIA DI BERGAMO	140	688	127	815	8.1
030302	A.S.L. DELLA PROVINCIA DI BRESCIA	62	688	127	815	7.5
030303	A.S.L. DELLA PROVINCIA DI COMO	91	379	61	440	8.6
030305	A.S.L. DELLA PROVINCIA DI LECCO	46	218	44	262	8.0
030313	A.S.L. DELLA PROVINCIA DI SONDRIO	78	141	17	158	9.0
030314	A.S.L. DELLA PROVINCIA DI VARESE	57	602	116	718	9.5
030315	A.S.L. DI VALLECAMONICA-SEBINO	42	67	9	76	7.4
P.A. BOLZANO			272	58	330	6.9
041201	AZIENDA SANITARIA DELLA P.A. DI BOLZANO	116	272	58	330	6.9
P.A. TRENTO			395	80	475	9.7
042101	TRENTO	217	395	80	475	9.7
VENETO			3,486	569	4,055	8.9
050101	BELLUNO	51	95	13	108	9.5
050102	FELTRE	18	57	10	67	9.1
050103	BASSANO DEL GRAPPA	20	123	24	147	12.2
050104	THIENE	21	131	21	152	8.1
050105	ARZIGNANO	10	125	22	147	8.6
050107	PIEVE DI SOLIGO	13	156	25	181	9.2
050108	ASOLO	11	164	30	194	9.6
050120	VERONA	12	330	61	391	8.4
050122	BUSSOLENGO	15	204	39	243	10.1
FRIULI VENEZIA-GIULIA			969	122	1,091	9.9
060102	ISONTINA	6	105	16	121	9.2
060103	ALTO FRIULI	42	67	6	73	9.9
060104	MEDIO FRIULI	19	280	34	314	9.7
060106	FRIULI OCCIDENTALE	25	224	34	258	10.0
LIGURIA			1,313	168	1,481	9.2
070101	IMPERIESE	42	167	23	190	8.8
070102	SAVONESE	40	228	25	253	8.9
ITALY			45,878	7,718	53,596	9.7

Table 49: number of general practitioners in the Italian Alps (Ministry of Health data, 2010).

In primary care, GPs play a central role: they establish the access to the health care services by prescribing medicines, specialist visits, diagnostic tests, laboratory tests and hospital admissions within the National Health System. Italy is one of the few countries where primary care for children is assigned to the family paediatrician. General paediatricians are like GPs for the population up to 14 years. Patients are required to register with a GP which has not reached the maximum number of patients allowed (1,500 for GPs and 800 for paediatricians).

The majority of GPs in Italy operate in their own practices, although the central government and regions offered economic incentives to encourage group practice and greater integration between GPs and other health care services, social care, home care, health education, and environmental health services. Recent legislation encourages multidisciplinary teams to work in three ways: GP group practice, where GPs from different offices share clinical experiences, develop guidelines, and participate in workshops that assess performance; network group practice, which functions like GP group practice but gives GPs the opportunity to access the patient's electronic health record; advanced group practice, where GPs share the same office and patients electronic health records and are able to provide care to patients beyond individual specialties. Legislation also encourages a better integration of health and social care services, with the aim of shifting long-term care from institutional services to community care services with an emphasis on home care. The community home care scheme was included in the National Health Plan for 1998–2000 and establishes a home care network that integrates the competencies of nurses, GPs, and specialists with the needs and involvement of the family. GPs oversee the home care network, liaise with social workers and other sectors of care and take responsibility for patient outcomes.

Statistical data reported in this report for GPs are referred to all general physicians and paediatricians.

In 2010, there were 53,596 practicing GPs in Italy (45,878 physicians and 7,718 paediatricians), 9.7 per 10,000 residents. In the regions with Alpine municipalities there is not a high variability in the allocation of GPs, with the exception of the Autonomous Province of Bolzano/Bozen, which has 6.9 GPs per 10,000 residents (table 49). As mentioned above, in Italy health services are organised by the regions and provided by LHUs. Therefore, the supply of GPs can be analysed in LHUs. The Alpine municipalities belong to 9 LHUs in Veneto, 8 in Piedmont, 7 in Lombardy, 4 in Friuli-Venezia Giulia, 2 in Liguria and to 1 LHU in the Aosta Valley, in the Autonomous Province of Bolzano/Bozen and in the Autonomous Province of Trento. In these LHUs there is a higher variability in GP allocation: apart from the Autonomous Province of Bolzano/Bozen, the lowest values were recorded in Lombardy in the LHU of the province of Brescia (7.5 per 10,000 residents) and in the Vallecamonica-Sebino LHU (7.4); the highest values were recorded in Veneto in the Bassano del Grappa LHU (12.2) and in Bussolengo (10.1), while in Friuli-Venezia Giulia the LHU of western Friuli had 10 GPs per 10,000 residents.

## Focus report on hospitals in the alpine area

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Italian National Institute of Statistics

The general goal of this analysis is the evaluation of time and road distances from all the 1,746 Alpine municipalities to the nearest hospital. In the Alpine area, there are 114 hospitals. The road and time distance (municipalities-hospitals) was taken from specific web services or by means of vector road maps and network analysis tool included in the GIS software.

### Description of the process

The analysis was carried out by means of free or open source datasets and web services. Information about hospitals in the Alpine area were provided without geographic coordinates but with their street addresses. Our first task was to geocode all the hospitals with the geocoding service batch offered by the website <http://www.findlatitudeandlongitude.com/>.

After some attempts, the address format that seemed to reduce failures in the geocoding process was the following: <hospital name>, <place name>, <address>, < number>, <zip code> - <municipality> (<province>).

The accuracy of the output geographic coordinates relates in more than 60% of the cases to the municipality, and works better for the other records, with a "top precision" for 15 hospitals over 114. The geographic coordinates of the 1,746 Alpine municipalities were extracted taking a point in the main urban settlement of each administrative area. Once the geographic coordinates of hospitals and municipalities were obtained, their road and time distance could be assessed. This task could be very heavy in terms of processing resources if applied to the entire set of records without any simplification. The distance/time matrix could be, in these conditions, of  $114 \times 1,746 = 199,044$  values. When using a web service for this task, limits to the maximum number of queries per day/second should be considered (with Google Maps Api: 2,500 requests every 24 hours, 10 per second).

Without considering the implementation of network functions on a GIS desktop software and the in-house processing of a road graph, simplification is necessary, to reduce the number of possible output values.

For each hospital, only the nearest 100 municipalities were considered (proximity being a straight line distance). The matrix was then reduced to  $100 \times 114 = 11,400$  values and was produced by means of the vector analysis functions of QGIS. The selection of the nearest hundred settlements is only a simple way to cut out the most distant settlements, but the real road distance was not taken into consideration. Travel time and road distance between municipalities and hospitals was evaluated by means of the Google Maps API, implemented in the Friendly Batch Routing<sup>26</sup> (FBR) software, realised by the Luxembourg University, by means of the following format: <record id>; <latitude\_of\_origin>, <longitude\_of\_origin>; <latitude\_of\_destination>, <longitude\_of\_destination >

Three additional output fields were obtained from the software that runs as a local web service : <time(seconds)>, <distance(meters)>, <steps>

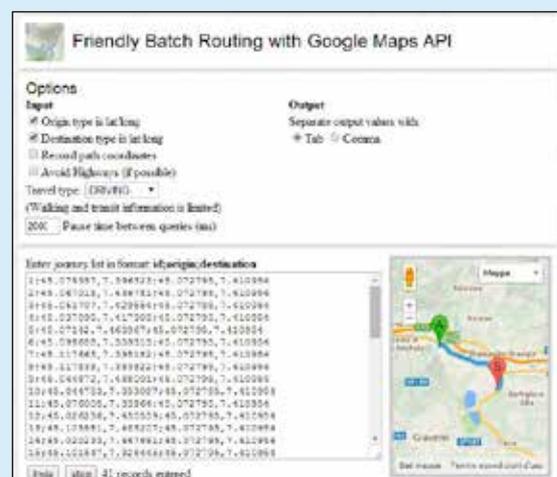


Figure 47: FBR interface.

26. <http://geow.uni.lu/apps/fbr/>

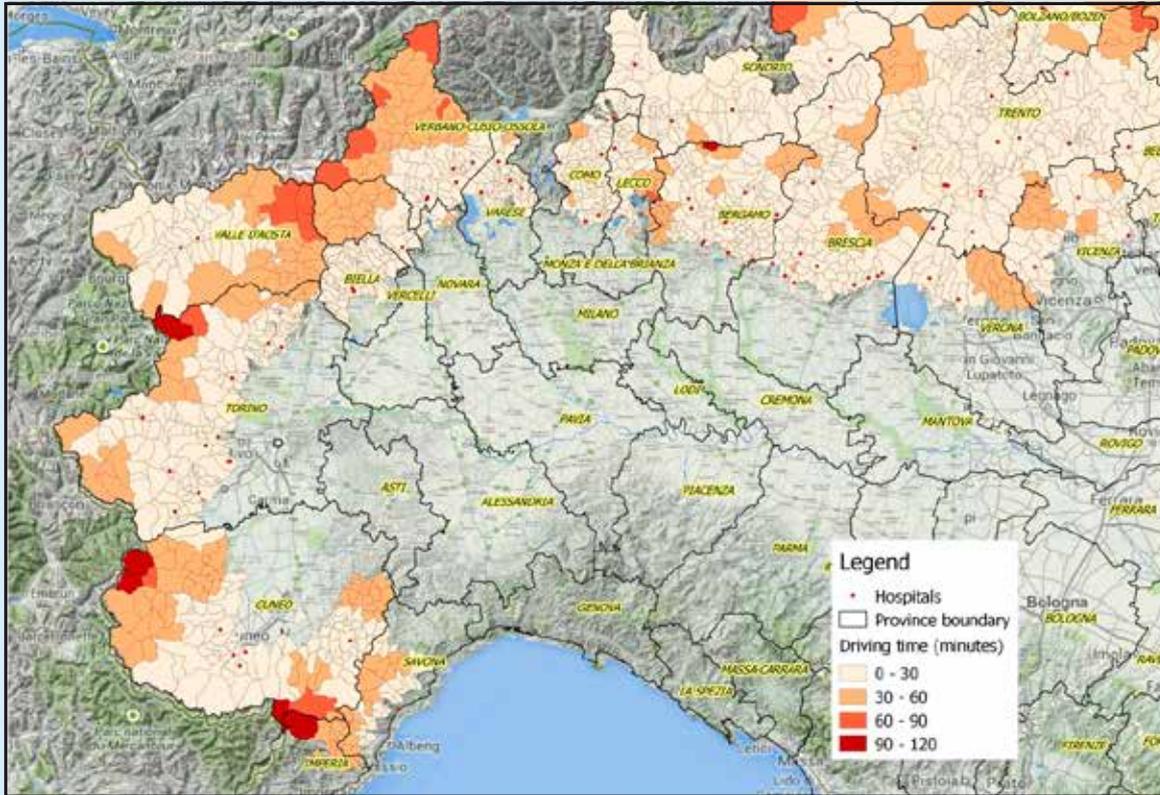


Figure 48: Travel times to hospitals in the western Alpine area.

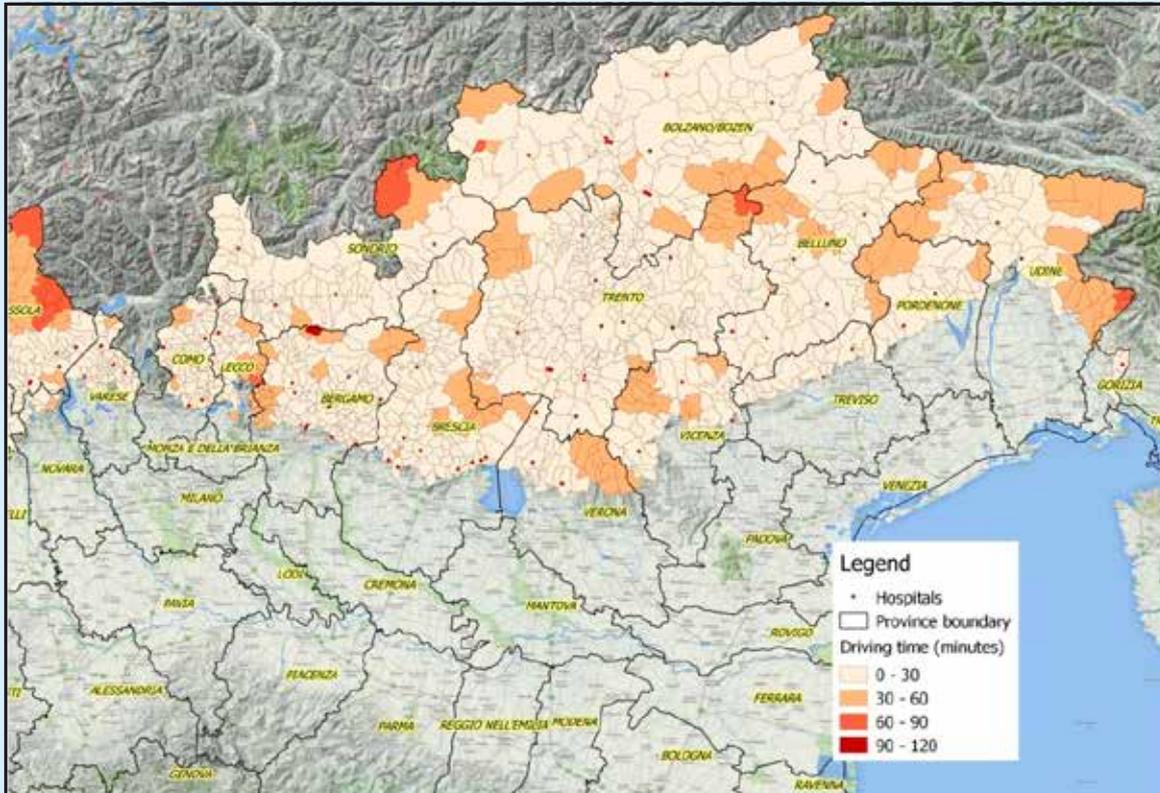


Figure 49: Travel times to hospitals in the eastern Alpine area.

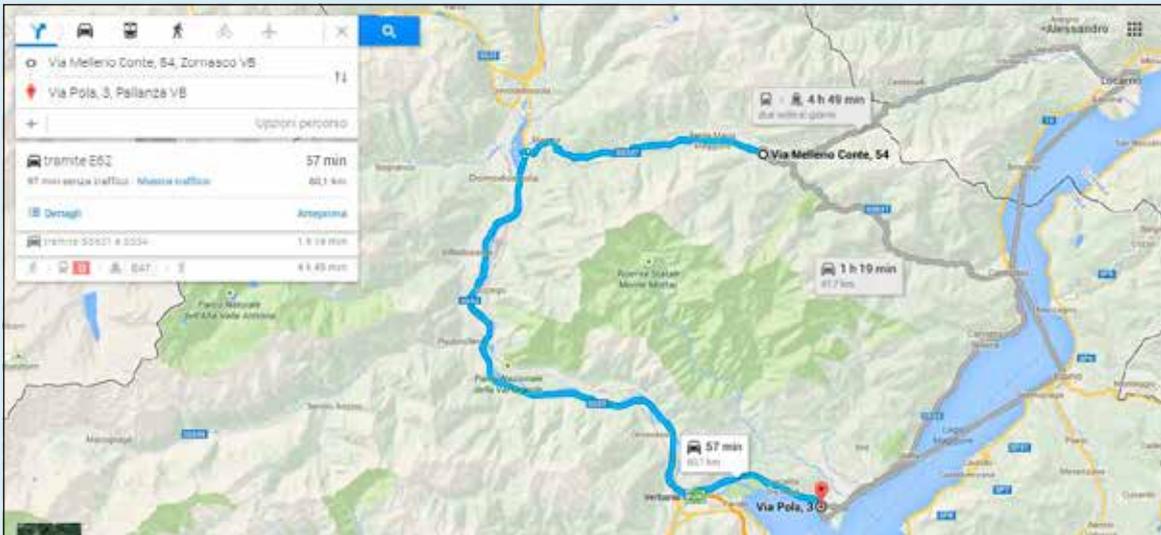


Figure 50: Journey from Malesco to the hospital of Verbania.

Due to the limitations of the number of requests, processing took five days.

Travel times were then classified into four classes of 30 minutes each in order to assign an isochrone class to each municipality and to produce specific theme maps.

## Results

The isochrone maps shown in the two following figures demonstrate, as expected, that the most distant settlements from hospitals are located in the high mountains and near the national border. In particular, the high impact of the earth morphology and of the barriers represented by lakes and mountains can be seen in the travel times in the Alpine area. This is particularly true in Northern Piedmont and in the Aosta Valley regions where in many municipalities, more than one hour of travel is necessary to reach a hospital.

The journey between the municipality of Malesco (VB) and the “Stabilimento Ospedaliero Castelli” hospital in Verbania is shown as an example. Travel time is 57 minutes for 60 km of road, but the straight line distance is only 22 km.

At the same time, the maps show a good distribution of hospitals in eastern Italy. In the regions of Lombardy, Veneto, Trentino-Alto Adige and Friuli-Venezia Giulia there are only 8 municipalities out of 1,108 with a travel time to the hospital of more than 1 hour.

In general, the distribution all Italian Alpine municipalities by travel time classes is the following:

Travel time class (in minutes)	Number of municipalities
0-30	1,336
30-60	344
60-90	19
90-120	9

## 5.2 INFANT DAY CARE

Fertility indicators play an important role for studying family and reproduction behaviours. In the analysis it is important to devote special attention to the presence of facilities that can encourage women to have children.

The proportion of children attending social and educational services for early childhood is used for measuring how policies to help reconcile family with work commitments are being

implemented. The indicator is defined as the percentage of resident children at the age of 0-2 years (until the age of 3 years) attending the socio-educational services (only services that are managed or funded by the municipalities are considered). The socio-educational services for early childhood include both nurseries and supplementary services for young children (including services managed at home). The indicator is available separately for the two types of services and in joint form.

### National contributions

#### ITALY

The regulatory framework in recent years has been aimed at increasing the number of socio-educational services throughout the country: in 2007 the “extraordinary plan of action for the development of the regional system of social and educational services for the early years” was put in place by signing the agreement in the joint conference between the government, the regions and local governments. In addition, this and other kinds of services have assumed a key role within the unitary regional policy, drawn up and described in the 2007-2013 National Strategic Framework (QSN). In this case the goal is to encourage female participation in the labour market, increasing the proportion of children who benefit from child care services.

The available data make it possible to examine the time series between 2004 and 2011 (last year available). Nationwide, after a slow but continuous increase of the percentage of resident children of 0-2 years attending the socio-educational services, in 2011 there was recorded a fall for the first time, by 0.5%. This variation is due to the decrease in users of supplementary services, while the share relating to nurseries remained stable.

In 2011, thirteen of the twenty-four provinces of the Alps showed values above the national average (13.5%). Between 2007 and 2010, the changes were positive in almost the entire area except for the provinces of Imperia, Savona, Como, Biella, and Verbano-Cusio-Ossola. Between 2010 and 2011, fourteen provinces of the Alps showed reductions in the enrolment of children in social and educational services for early childhood.

## 5.3 MOBILITY

Transport and mobility have always been crucial issues in the socio-economic development of the Alpine area. They have fostered national and international trade and laid the foundations for tourism. Nevertheless, the mass motorisation and the increased access to transport by different social groups – i.e. the so-called democratisation of transport (Hernández Luis, 2008) – have raised the issue of sustainability, mainly in environmental terms (e.g. energy consumption and emission reduction). Since then, mobility has been no longer interpreted as a mere economic development accelerator, but also as a high-impact activity, which needs to be managed and regulated.

According to the First Report on the State of the Alps (Permanent Secretariat of the Alpine Convention, 2007), the terms ‘mobility’ and ‘transport’ are not exactly synonymous. In fact, transport merely means moving people and goods a

given distance, while mobility is a more complex and socially embedded phenomenon. Mobility necessarily involves transport, but also includes “the accessibility of personal options and opportunities to serve human needs in a social sense” (potential mobility) and “the position of humans in a symbolic space” (realised mobility) (Götz, 2003).

The most common approaches for analysing mobility and transport are systemic (Rodrigue, Comtois and Slack, 2006; Tolley and Turton, 1995; Hoyle and Knowles, 1998). According to them, the transport system consists of nodes and links that (potentially) enable to move across time and space using different methods (e.g. rail, car, bus, etc.). Adopting this perspective, the Alpine Transport System is a multi-modal network of transport infrastructures and operational services that can be analysed at local, regional, national and international level (Permanent Secretariat of the Alpine Convention, 2007). The transport system is both dependent on and influences demographic development.

Indeed, on the one hand, demographic factors shape the transport demand and therefore impact on the infrastructural and service characteristics of the system – e.g. quality standards for people with limited mobility. On the other hand, the accessibility of the system influences the selection of the location of settlement areas, the possibility for inhabitants and guests to move around (motility) and consequently the development of economic activities as well as the quality of life.

Accessibility is an important issue especially for small rural or peripheral villages in the Alps and its increase due to the upgrading or the introduction of new transport infrastructures has been a major driving force of regional development policies and landscape change. According to the information contained in the Tutorial “Governance Capacity” (2006), the accessibility of the Alpine centres (transport infrastructure hubs) has improved at a higher rate than in the periphery, and this trend will continue in the future. Improvements in accessibility to small towns has instead remained quite slow, leaving some towns isolated. Despite this general trend, the situation across the Alpine states is quite diversified and the scarcity of studies on the accessibility of metropolitan areas in some countries (e.g. France, Austria and Italy) makes comparisons rather difficult (Voll, 2012).

Accessibility is a good indicator for evaluating the ease of reaching a location using public or private transport. It enables people living in more remote places, such as villages of mountain areas, to connect nationally and internationally, and have access to a broad set of resources and services. Increasing the accessibility of areas by using and combining different types of public transport clearly represents a key opportunity especially in mountain areas where the extensive use of private vehicles, which provide the maximum degree of

flexibility, is no longer sustainable. Favouring public transport and discouraging the use of private vehicles is crucial for the creation of more sustainable and efficient transport systems, which directly contribute to the sustainable development of communities. One of the main criteria normally adopted to evaluate accessibility is the presence (and the frequencies) of public transport, which physically provide a means for moving people from one point to another. An additional criterion to measure accessibility is the evaluation of the travel times required to move from one point to another. It includes several elements, such as the travel time spent waiting for the vehicle, the time taken while being transported, and then the time required to reach the final destination on foot.

The presence of the public transport service and the travel times necessary to reach destinations characterise the accessibility of the transport system, but accessibility is often not enough to ensure a shift from private to public means of transportation. A more accurate analysis of the strengths and weaknesses of the system is by also taking passengers’ perspectives into consideration, and this seems to be crucial to a) set up a user-centred design of the service and b) to increase the attractiveness of the whole system. Therefore, apart from quantitative analyses of the performance of public transport, customer satisfaction analyses are a tool to define priorities and measures to meet the needs of the users and create a link between transport operators, public institutions and users.

The topic of accessibility is tackled in this report through an in-depth analysis of the case of the Alto Adige/South Tyrol province, which provides an interesting example of an integrated and extensive transportation system that not only guarantees a good level of accessibility, but is also able to satisfy passenger needs.

## The public transport system in South Tyrol (Italy). Mobility, accessibility and passenger satisfaction

*Anna Scuttari and Elisa Ravazzoli - EURAC Research*

### The Public Transport System in South Tyrol

South Tyrol is an autonomous province in Northern Italy, bordering Austria and Switzerland. The province has an area of approx. 7,400 km<sup>2</sup> (only 5.5% of which can be built on, ASTAT, 2012d) and a population of more than 500,000. The local economy is mainly based on the tertiary sector, with the tourism sector playing a key role, although South Tyrol still also has a strong agricultural sector (ASTAT, 2012a). The road network (national and provincial roads) is managed at provincial level, with an extension of 5,016 km, corresponding to 677.8 km per 1,000 km<sup>2</sup> (Figure 51); the rail network is partly state-owned and partly run by the Region, extends 287 km which amounts to 38.8 km per 1,000 km<sup>2</sup> (ASTAT, 2012c)<sup>27</sup>. The Brenner Highway crosses the South Tyrol province from north to south and is a strategic connection within the Verona-Munich corridor, both in terms of freight and passenger transport. Mobility is crucial to South Tyrol, as to most Alpine regions, since it helps reduce the depopulation process in the peripheral areas and increases their accessibility for tourism. Therefore, the local government has always been active in the creation of a solid transportation network, investing in infrastructures, in operational services and in customer relationship and information management.

### The Integrated Transport System in South Tyrol

Public transport in South Tyrol is characterised by the integration of different means of transport into a single tariff system, as well as the use of clock-face schedules. The integrated transport system includes regional trains for routes controlled by the province as well as for those reaching Trento and Innsbruck, urban and long-distance buses, city buses and certain cable car lines and funicular railways (<http://www.sii.bz.it/en/south-tyrol-integrated-transportation>; <http://www.ibv-zuerich.ch/index.php?id=144>). Trains act as the backbone of the network and aim at connecting the main cities and villages to one another, while bus transportation, cable cars and funicular railways aim to increase the accessibility of more remote areas, and city buses and urban buses guarantee the mobility within urban centres. In 2014 the integrated transport system included 114 suburban bus lines, 13 city buses, seven funiculars and an extensive network of urban transport in the main cities (Bolzano/Bozen and Merano/Meran) as shown in figure 52.

The provincial rail network extends along the north-south axis (Brenner-Bolzano-Verona line) and the east-west axis (Malles-Merano-Bolzano and Fortezza-S. Candido). The northern part of the Brenner line (Brenner-Salorno) is the oldest in the region and is the result of a project developed by the Austrian government in the mid-nineteenth century to connect Verona to the Bavarian border. The Bolzano-Verona part was inaugurated in 1859 (Ditterich, 1953). The westbound (Malles-Merano-Bolzano) and eastbound lines (Fortezza-S.Candido) are more recent than the Brenner line. The westbound line was built in 1906 and dismantled in 1990 due to its marginality within the national network.

Fifteen years later the entire line was taken over and revamped by the Autonomous Province of Bolzano/Bozen. The route uses Fast Light Innovative Regional Trains (FLIRTs): a regionally financed and more advanced rolling stock compared to that in use on most Italian rail lines, including the Brenner line. The Val Pusteria Valley line (Fortezza/Franzensfeste-Brunico/Bruneck-San Candido/Innichen) was inaugurated in 1871, and electrified at the end of the 20th century. In 2008, this line was also provided with some additional local trains (FLIRT trains), with a similar design to those used on the Val Venosta line, which can carry bicycles in the summer months and are adapted for ski transport

*27. If we compare South Tyrolean transport infrastructure data with the corresponding data in Italy, comparatively low coverage of both road and rail transport can be noted. This lower coverage, which is common to most Italian Alpine regions, may be due to the presence of mountainous areas where building land is scarce and population density is high in the urban areas. Source: ISTAT (2006) *Le infrastrutture in Italia. Un'analisi provinciale della dotazione e della funzionalità* [http://www3.istat.it/dati/catalogo/20060512\\_00/inf\\_0607\\_infrastrutture\\_in\\_Italia.pdf](http://www3.istat.it/dati/catalogo/20060512_00/inf_0607_infrastrutture_in_Italia.pdf).*

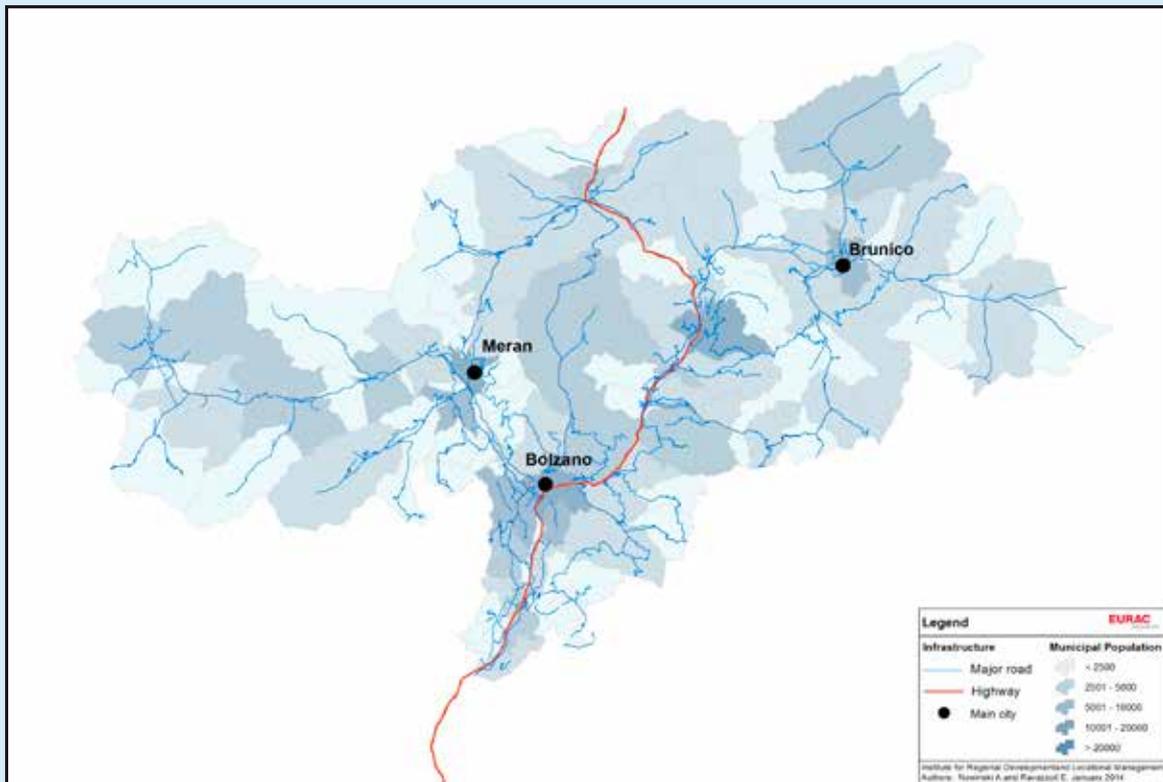


Figure 51: Map of the road transportation system.

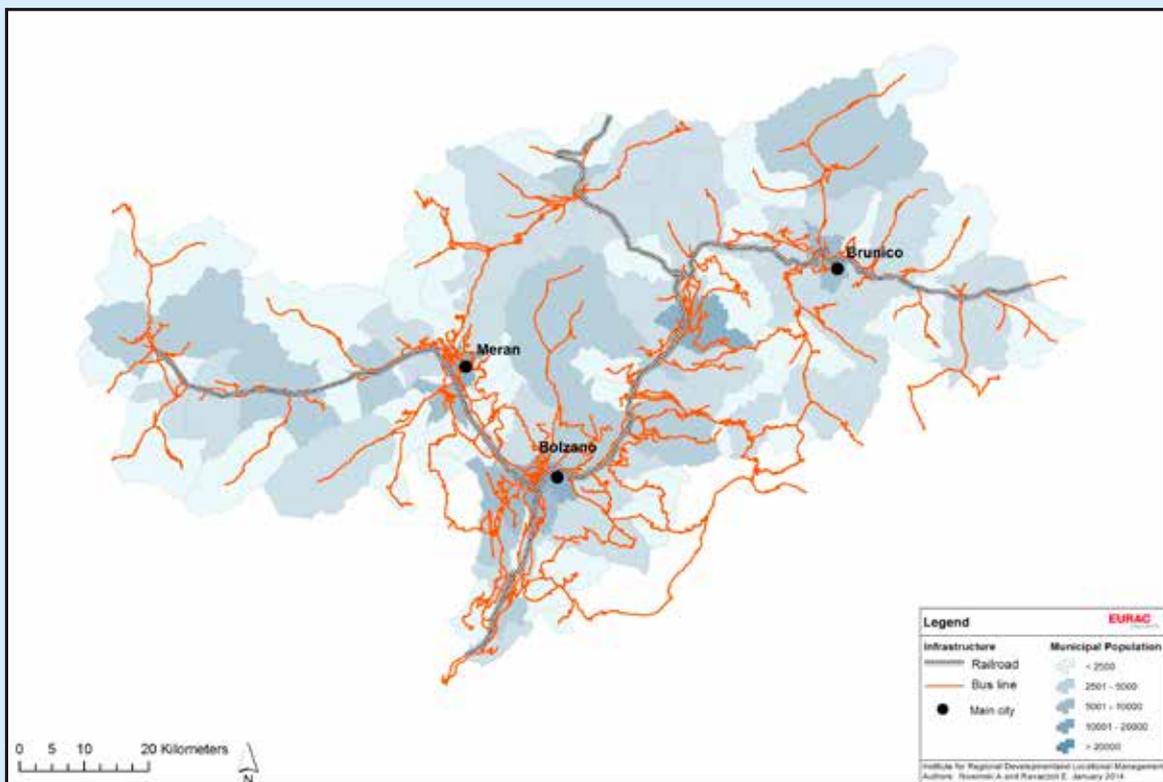


Figure 52: Map of the public transportation system.

during the winter. Thanks to their versatility, these trains are a viable alternative to cars for commuters, tourists, hikers and sport enthusiasts alike.

### The Tourist Transport System

With more than 6 million arrivals and 29 million overnight stays in 2012 (ASTAT, 2014), tourism plays a key role in the South Tyrolean economy. In 2005 the direct added value from tourism was €1.7 billion, corresponding to 11.2% of the local GDP (ASTAT, 2012b). The main tourist markets are Germany and Italy - accounting for 48% and 33% of overnight stays in 2012 respectively (ASTAT, 2014). The journey to South Tyrol occurs mainly by car - 89% of arrivals are by car and only 4.6% by public transport (ASTAT, 2008). Nevertheless, cars are partially substituted by public transport during holidays - 56% of the trips are by car and 21% by public transport during the stay (ASTAT, 2008).

The public transport system is promoted to tourists through mobility cards which enable transport services to be combined with access to tourist attractions. Special tourist cards - 3.7 million in 2011 (ASTAT, 2014) - are offered to tourists free of charge in some municipalities in order to increase the use of public transport. Notwithstanding these incentives, several studies confirm that tourists have scarce information on the mobility offer and therefore mainly buy single tickets. Increasing awareness and providing adequate information in cooperation with tourist offices and accommodation facilities is therefore a key element for increasing access to public transport. Public transportation for tourists is a great challenge and opportunity for the South Tyrol region, especially if considering that those tourists who use public transport in South Tyrol are on average more satisfied than the inhabitants (Pechlaner et al., 2012; Pechlaner et al., 2013). Cable cars and funiculars are an important element of the tourist transport system. South Tyrol has 375 cable cars, concentrated mainly in the eastern part of the region. Funiculars are crucial to tourism development since they support winter sport activities and are becoming increasingly important in the summer season as well (ASTAT, 2012c). Recently, a connection between rail and funiculars has been introduced in the Pustertal Valley at the Percha/Perca and Vierschach/Versciaco stations. This innovative element has brought about the need for a new integration of methods and a reorganisation of parallel services (e.g. ski-buses) as well as the introduction of new product and pricing policies for winter tourism.

### Accessibility assured by Public and Private Transport Mode in South Tyrol

In order to measure the accessibility assured by the public transport system in South Tyrol, we have considered two separate aspects of travelling time: the time required to reach the closest bus stop or rail station (*accessibility of the transport system*) and the actual time spent while travelling (*accessibility of the destination*). Data on these two aspects have been collected in different ways: the *accessibility of the transport system* was estimated through the European project INTER-Regio-Rail ([www.interregiorail.eu](http://www.interregiorail.eu)) and particularly through the survey on residents' travel behaviour in South Tyrol; accessibility of the destination was calculated through an ad-hoc data collection concerning travel times, which enabled an origin-destination matrix to be made<sup>28</sup>. Results of the INTER-Regio-Rail project provide an estimation of the average time taken for train users to reach the nearest rail station. This amounts to 12 minutes approximately and 44% of the interviewees are within walking distance. The origin destination matrix enables to compare the travel times required to cover a given distance by public and private transport in South Tyrol (i.e. by train or bus vs. by car). The distance examined as a representative case is that between each municipality and the most important transport hub of the region, the city of Bolzano/Bozen. It should be pointed out that, in a complementary manner to the data above presented, the collected travel times to cover this distance refer only to the accessibility of the destinations (the actual travel time spent in cars/public transport) and do not consider the accessibility of the transport system (the so-called "first mile", namely the time required to reach the closest bus stop/railway station).

Moreover, travel times were collected by measuring the time taken both by bus and by train, but only the fastest travel time was considered and represented on the map.

28. The origin destination matrix of travel time was created by taking into consideration the centre of each municipality. Data on travel time between each municipality and Bolzano/Bozen were gathered from the *viaMichelin* website (<http://www.viamichelin.it/>) in November 2013.

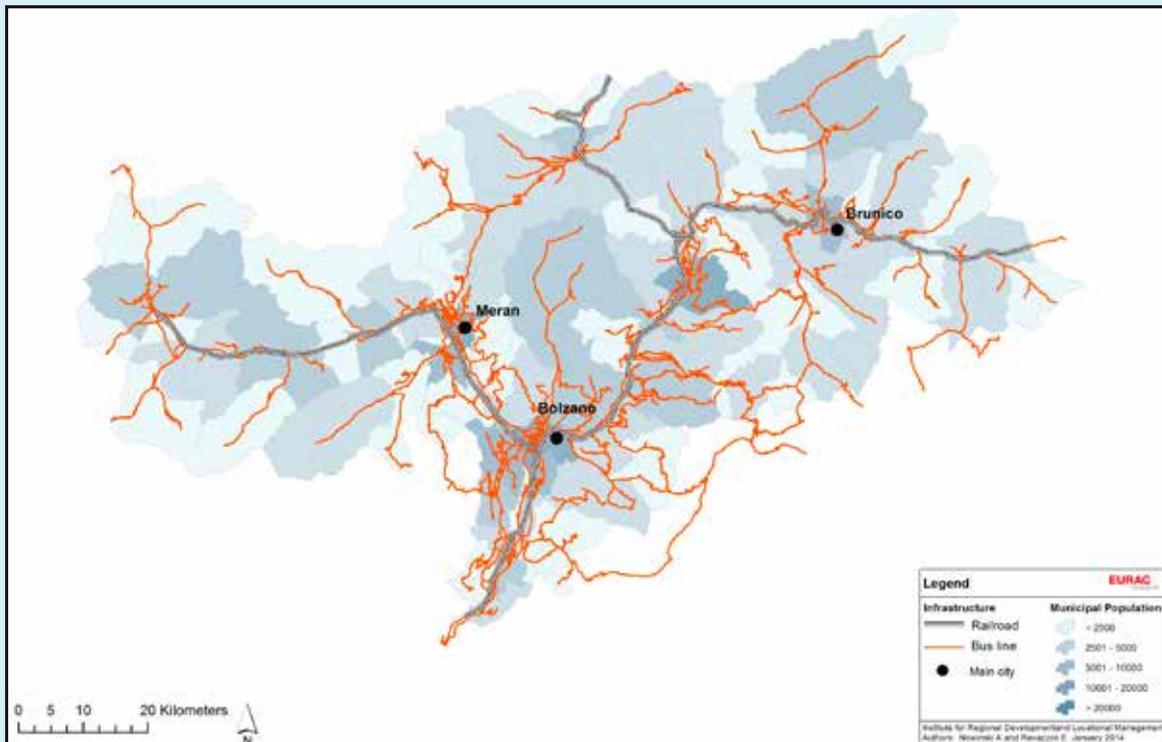


Figure 53: Map of the travel time to reach Bolzano/Bozen city by public transport.

Figure 53 shows the accessibility of the destination Bolzano/Bozen – i.e. the travel time necessary to travel on public transport from a municipality to the city of Bolzano/Bozen. Figure 54 shows the same information for a journey made by car. Data show that on average it is possible to reach the city of Bolzano/Bozen in 70 minutes by using public transport and in 55 minutes by using the car. What is clear from figure 53 is that the north-west part of the region is the most accessible by public transport (the travel times are under 60 minutes). Indeed, in this part of the region, municipalities can benefit from a direct public transport connection (either bus or rail). However, by directly comparing the two maps, it appears that the western part of the region is more reachable by public transport than by car. On the contrary, the eastern part is less accessible, since the minimum time required for reaching Bolzano/Bozen ranges from 61 minutes up to 90 minutes. The most accessible part of the region by car includes municipalities that are located along the north-south direction, following the A22 highway, while the eastern and western parts cannot be easily reached by car and the minimum time required to reach Bolzano/Bozen ranges from 61 up to 90 minutes or even more.

## Concluding Remarks

The integration of different means of transport, the good accessibility and the capacity to meet passenger needs, as emerges from the results of the INTER-Regio-Rail study (Pechlaner et al., 2012), show the high quality of the South Tyrolean transport system. This good performance is not only relevant per se, but has several impacts on the selection of the settlement locations and the construction of new built-up areas, on the quality of commuting (and the related quality of life of residents) and lastly on the overall sustainability of the region<sup>29</sup>. Moreover, an efficient transport system discourages use of private vehicles, thus indirectly reducing pollution and greenhouse gas emissions. In addition, free access to public transport for young and elderly people has a positive impact on social cohesion since it

29. The role of mobility for sustainable development of Alpine areas has been statistically tested and confirmed by Putzhuber, F., Hasenauer, H (2010), *Deriving sustainability measures using statistical data: A case study from the Eisenwurzen, Austria, Ecological Indicators, 10, 32–38.*

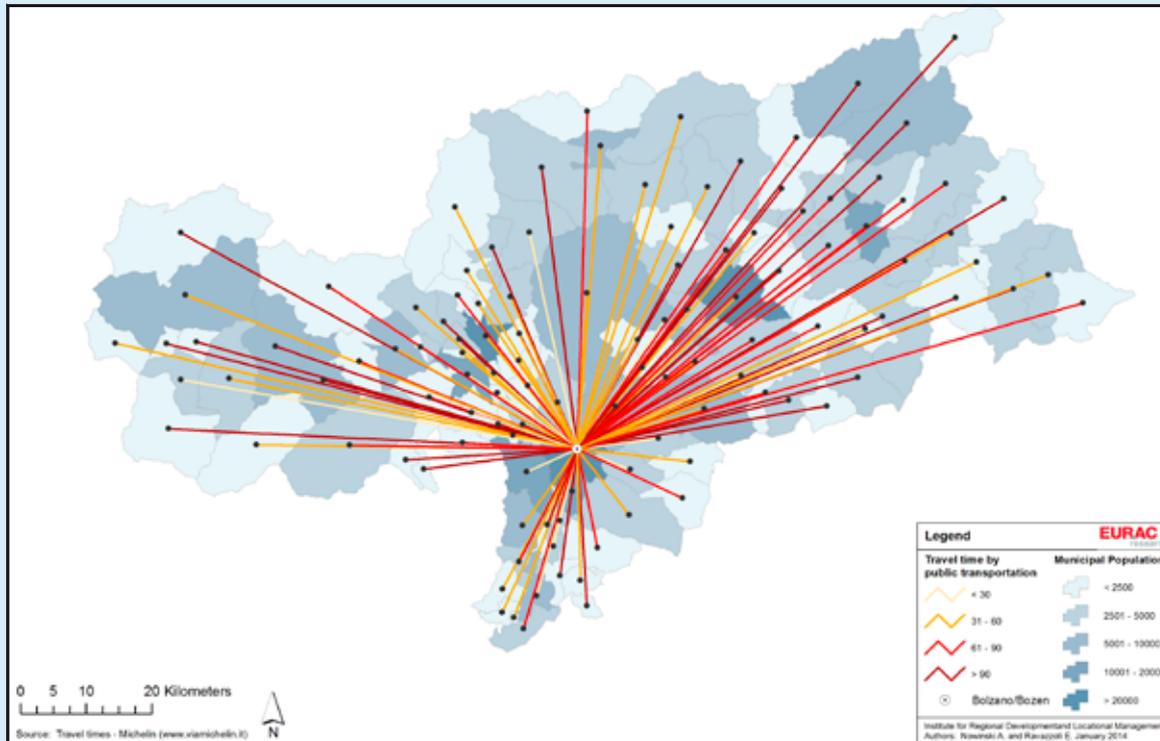


Figure 54: Map of travel time to reach Bolzano/Bozen city by car.

increases the potential mobility (motility) of these passenger groups, while simultaneously stimulating their awareness of sustainable mobility principles. Nevertheless, the realisation and the maintenance of such a widespread and accessible public transport system require considerable financial input over time, which may be questioned in periods of financial straits. In this respect, a correct balance between the scale of investments and their capacity to reduce environmental and social impacts of the transport system is crucial to foster a sustainable regional development in the long term, particularly in Alpine regions.

## Good practices

### Provibus – Public transport in piemonte (Italy, Piedmont, Province of Torino)

#### Issues:

- improve regional competitiveness;
- innovative solutions to provide services in sparsely populated areas.

#### Type of measure:

- pilot action;
- Political measure.

#### Funding:

Province of Torino.

#### Background:

The difficulties in connections between villages and the main towns are widespread in Piedmont, not only in the Alpine valleys, but also in the hills country and the plain. Many families have problems reaching their workplace and even more problems organising their children's

school attendance. Official traditional public transport is not effective because of its high cost and the limited number of passengers.

#### Implementation:

The service of the "Provibus" (car service on demand, booked beforehand, shared (or not) with other customers) started in the hills near Turin where many people live but go to work in the city. Secondary schools and universities are situated in Turin, so many young people travel every day at different hours.

This service started promisingly and grew over the following years, so that now we have 10 areas covered by this service, four of them in the Alpine area.

#### Indicators:

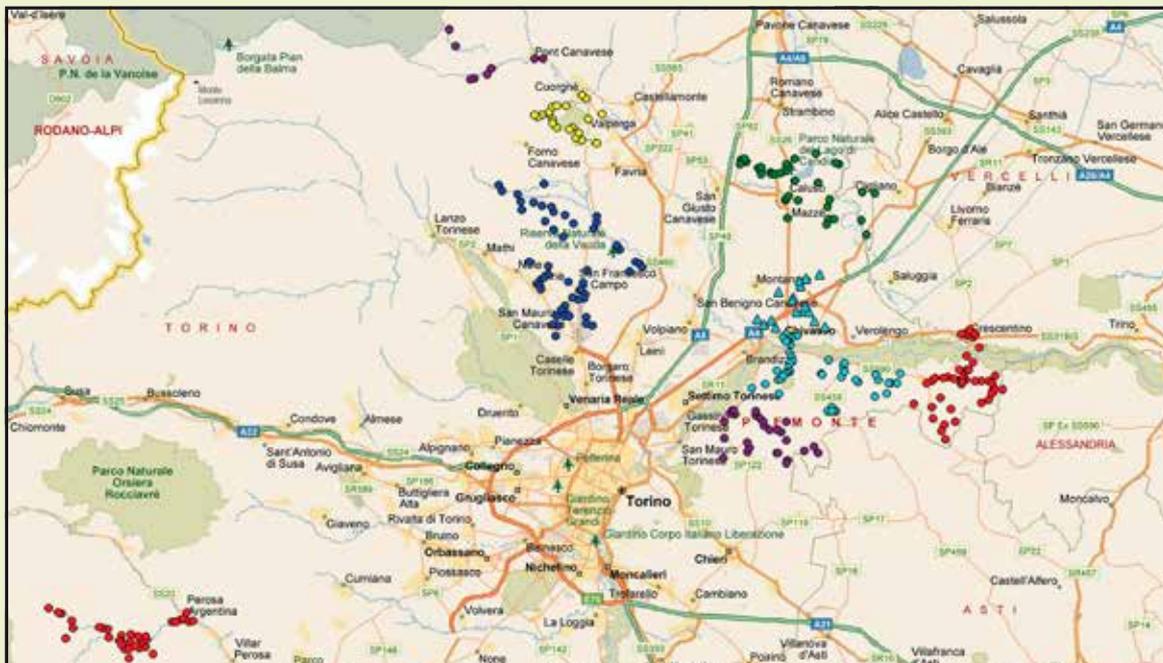
Since 2006 (initial start of the first service in a plain area of Crescentino), nine new lines are working.

#### Transferability:

Very simple methodology, total transferability.

#### Link:

<http://www.provincia.torino.gov.it/trasporti/provibus/index.htm#ilservizio>



## Good practices

### Alias Project: Alpine Hospitals Networking for Improved Access to Telemedicine Services (Lombardy Region – DG Health (project coordinator), Rhône-Alpes, Friuli-Venezia Giulia Region, Carinthia, Slovenia, Bavaria, Canton of Geneva)

#### Issues:

- innovative solutions to provide services in sparsely populated areas;
- increase the knowledge of local trends and work out a strategy to develop the area and maintain services.

#### Type of measure:

- pilot action (project: ALIAS – n. 10-2-2-IT – co-funded by the Alpine Space Programme).

#### Funding:

EUR 1,914,600.

#### Background:

Limited access to health care (HC) and quality of care are closely interlinked. Improving access to healthcare in poorly served areas and better professional interactions for local providers increase the quality of HC services in these areas. One way to address the accessibility issue is by “redistributing” specialists and clinical resources available in urban HC centres to these Alpine Space areas. Telemedicine (eHealth) allows this without physical relocation of providers by eliminating the significance of time and distance between patient and providers.

#### Implementation:

ALIAS (July 2011 – October 2012) was aimed at offering ICT public services for citizens and professionals. The project enabled the creation of a network shaping the ALIAS Virtual Hospital, networking 12 pilot nodes, for sharing medical information and exchanging best clinical practices, to improve the efficiency of hospitals in remote Alpine areas. Two telemedicine services have been developed and piloted: sharing information so that a healthcare professional in an ALIAS network hospital can access information about a patient coming from any

(other) ALIAS region, on consent from that patient, and advice querying in which a healthcare professional in an ALIAS network hospital can use telemedicine tools for expert advice on a patient under treatment.

#### Indicators:

As a pilot system for cross-border telemedicine focused on the role of hospitals in delivering healthcare services at a distance, ALIAS has proved the concept of an innovative and exportable model of cooperation between professionals working at a distance. This model has been based on an organisational and technical platform including secure communication, safeguard of shared data, specialised clinical expertise and a reliable system for processing clinical information to support decisions taken by healthcare practitioners.

By the end of the project, all 12 pilot sites were in a position to run the ALIAS services. The results evaluated show that, from a technical and security point of view, the system has been widely accepted by the users.

The output of the pilot action also influenced local healthcare management. The principle behind the development of the ALIAS platform, both from an organisational and technical point of view, was to enhance community welfare in the Alpine regions. In this respect, while ALIAS was conceived as a first step in cooperation between the Lombardy and Rhone-Alps regions in the healthcare sector (a memorandum was signed in 2008), during its implementation all the regions involved were very interested in extending this cooperation to neighbouring areas, giving rise to new and interesting opportunities. As a result, while ALIAS was being put in place, the Councillor for Health of Lombardy signed 2 letters of intent with Friuli-Venezia Giulia Region (2010) and the Bavarian Ministry of Environment and Public Health (2012). Further initiatives have also been recently initiated by Lombardy with the local healthcare authorities in Slovenia and Austria. This policy framework promises to give consistency and continuity to a transnational initiative which has a strong policy commitment and a long-term vision for making its results sustainable and replicable. Lastly, the ALIAS initiative has been included in the Strategic Plan for 2012 of the Lombardy Region driving the implementation of healthcare policies (DELIBERAZIONE N° IX / 2633 Seduta del 06/12/2011 - DETERMINAZIONI IN ORDINE ALLA GESTIONE DEL SERVIZIO SOCIO SANITARIO REGIONALE PER L'ESERCIZIO 2012, annex 8).

**Transferability:**

The groundwork of the ALIAS project has resulted in a combination of technical, organisational and legal components forming the basis on which to check whether the results can be capitalised on for further development. Given the results achieved by the ALIAS operation and the positive experience gained through the services deployed, the project partners – to which new players have been added – have committed to capitalise on the work done by adding to the ALIAS central platform new services directed towards both patients and Primary Care services.

Under the framework of the Alpine Space Programme 2007-2013, the NATHCARE project – Networking Alpine Health for Continuity of Care – may be seen therefore

as the natural development from the ALIAS system. The main concept at the heart of the NATHCARE project is to provide a set of services promoting integration of Primary and Secondary care processes - a way to increase both efficiency and efficacy in healthcare – while allowing patient empowerment and ensuring transnational adoption of well-documented best practices, in such a way as to provide availability of highly trained medical professionals even in remote areas. To do so, NATHCARE is capitalising on the experiences, expanding the scope and refining the services developed within the framework of the ALIAS initiative in order to perform it.

**Link:**

[www.aliasproject.eu](http://www.aliasproject.eu)



## 6. CONCLUSIONS

The general aim of this Report on the state of the Alps has been to describe the main socio-demographic situations of the Alpine area, crossing the national boundaries. The strategy applied was therefore to collect data only from municipalities so as to produce comparable data and create a harmonised overview of the Alpine situation as regards defining the indicators, the reference time series, geographical homogeneity and the sources considered. Another step was to compare the Alpine region with the national average data in the individual Alpine countries: this revealed certain specific features to be focused on in order to analyse the mountain-related issues and the solutions on the field as presented in the examples of good practices.

Analysing the Alpine socio-demographic situation primarily revealed that demographic growth in the Alpine region is currently very uneven. The differences in demographic growth are related to accessibility, topography and altitude, socioeconomic factors, position and role of the Alpine region in each country. Areas with growing population are located close to areas of demographic decrease. To a proportionately lesser extent, similarly contrasting trends can be found in the individual regions or even provinces. In very general terms, it can be stated that the population is growing in the central and northern part of the Alps and decreasing in the eastern Alps and in some sectors of the southern side of the crescent. While in the 20th century there was a sharp difference between the German speaking parts of the Alps and those speaking Italian and French, now the differences are less obvious but more complex.

As of 2013, the Alps were inhabited by 14,232,088 people in an area of 190,717 km<sup>2</sup>, with a population density of nearly 75 inhabitants per km<sup>2</sup>, making the Alps one of the most sparsely populated areas in Central Europe and yet one of the mountain areas with highest population density in the world. The population density was generally found to be higher in the peri-Alpine areas and in the main valleys than in the core Alpine area. The establishing of urban centres in the Alps and the ongoing process of peri-urbanisation have led to a change in living standards. The Alps are no longer a mainly rural area with a rural population, but can be considered a residential area currently favoured by those seeking to combine the advantages of urban infrastructure with the attractiveness of unspoilt countryside.

In the decade considered in this report, the average rate of population growth has remained positive thanks largely to immigration which has been gaining considerable strength. Migration processes generally involve the peri-urban and the peri-Alpine areas, while a parallel depopulating of isolated

areas can be observed, showing how the demographic pattern is uneven. In the entire Alpine area the foreign resident population is 94.7 per 1,000 residents but individual areas vary considerably: the minimum is in the Slovenian Alpine area with 41.3‰ (followed by the French Alpine area, 62.3‰) and the maximum is observed in Liechtenstein (335.0‰) and Switzerland (203.6‰). In addition to international migrations which have become a significant social and demographic feature for the whole of Europe, the Alps also have inflows of older people who wish to live in a pleasant environment. Moving in the opposite direction, young people leave the highlands (and sometimes even the Alpine perimeter) in considerable numbers in search of more specific and higher quality education and jobs.

Linked to this situation, another key issue of Alpine demography is the ageing of the population, which requires a rethinking of how to provide public services and of some specific but crucial aspects of the welfare system, not least because the localities that are most affected by ageing are the smallest and with poorest connections to the main road network. Ageing in particular heightens the need for public administrations and private investors to improve certain services (e.g. social services, hospitals, distribution of meals) and to create ad-hoc structures. Both the decrease and the ageing of the population bring about the closure of services like primary schools: this entails changes in the patterns of cultural transmission and intergenerational relations, affecting the entire community.

The evidence collected and systematised by the expert group which worked on this report reveals that, behind the naked figures which measure the declining or growing number of inhabitants or even the structural ageing of the Alpine population, there are hidden compositional changes. An all-important issue is that of changes in composition of many upland communities owing to the immigration of new inhabitants, generally younger than most of the local population, mostly coming from the lower reaches of the Alps or even from the cities in the plains, and quite often also from afar. Needless to say that these compositional changes are especially pronounced in those areas where the population is growing in spite of a negative or, at best, stationary natural balance of births and deaths. But these immigration flows also occur even in those municipalities where the number of inhabitants is falling.

All in all, it can be concluded that, similarly to the demographic evolution, economic development in the Alpine area is extremely varied and polarised. The symbiosis between tourism and services, industry, electricity production,

agriculture, transport and mobility is the basis of this economic development.

The characteristics of the various Alpine areas have been illustrated with the help of detailed maps. The connection with the territory is crucial for understanding the current demographic situation and the most recent trends.

On the other hand, it has to be pointed out that not all the Contracting Parties were able to participate in drafting the report with the same degree of efficiency and completeness. The difficulties found by some parties to provide direct information on some relevant issues have resulted in a certain lack of homogeneity in the dataset. For the time being, this has hampered an adequate balancing of the contributions from different regions in the report and prevented a detailed comparison of the figures.

It is also very important to note that the recent national census (2011) offered the opportunity to have a larger amount of data, more updated and at a more detailed territorial level for the whole Alpine area which provides a more accurate picture, especially for the labour market, to assess the extent and direction of the changes that have taken place in the past decade.

To provide an easy-to understand overview of this complex and varied picture, this report has made use of instruments such as summary indexes which are able to summarise in a single average value the multiplicity of characteristic values

of each different micro-territorial area. To measure the demographic and labour market dynamics in the Alps, the Mazziotta-Pareto Index, described in chapter 4, was applied to a set of eight demographic and labour market indicators, calculated for each of the Alpine municipalities included in the analysis.

A final step of analysis also enabled taking into account several variables simultaneously (both demographic and employment) in order to summarise them in one or in a restricted set of main dimensions. The Alpine areas were then grouped in different clusters based on characteristics observed in them regarding some of the dimensions previously identified (areas of well-being vs. critical areas). This cluster analysis confirms that, at a micro-territorial level, huge differences in conditions and dynamics persist in the area, in terms both of the population's demographics and of the labour market. These differences sometimes straddle national borders, while in others they are fairly clearly defined and delimited by national or even regional boundaries, highlighting the importance of any policy in guiding certain phenomena.

In the report, several thematic analyses (specific chapters dealing with a particular phenomenon written by individual countries, observers, external subjects) and a number of good practices have been included. These further studies dealing with demographic changes and their impact on the labour market and the provision of services have been collected in order to provide examples and suggestions for policy makers.

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## ANNEX A - GLOSSARY

### Demographic overview

*Area of permanent settlement* | Area inhabited or continuously used throughout the year; in other words, where the majority of human activities is concentrated. This area includes intensively cultivated agricultural areas, settlements and transport infrastructures, but does not include forests, pastures, bare rocks, wasteland and water surfaces. Due to the requirements of the respective spatial planning, the relevant administrative and political definition of the area of permanent settlements differs in individual countries (Permanent Secretariat of the Alpine Convention, 2007).

*Crude birth rate (per 1,000 residents)* | The crude birth rate is the number of live births occurring in the population of a given geographical area during a given year, per 1,000 mid-year total population of the given geographical area during the same year.

*Crude death rate (per 1,000 residents)* | The crude death rate is the number of deaths occurring in the population of a given geographical area during a given year, per 1,000 mid-year total population of the given geographical area during the same year.

*Foreign resident population by sex (per 1,000 residents)* | A foreigner is a person who is not a citizen of the host country in which he or she is residing or temporarily sojourning.

*Life expectancy at birth* | The average number of years that a person at that age can expect to live assuming that age-specific mortality levels remain constant.

*Life expectancy at 65 years* | Life expectancy referred to people who are 65 years old.

*Natural change* | The number of live births minus the number of deaths.

*Percentage of elderly population* | Residents above 65 years on the total population \* 100 ( $P_{65+}/P*100$ ).

*Percentage of working-age total resident population* | The percentage on the total population of the residents aged from 15 to 64 ( $P_{15-64}/P*100$ ).

*Population density (residents per km<sup>2</sup>)* | Number of residents per area unit (square kilometres)

*Population growth rate (percent)* | It represents the average

annual growth of the population in a specific time frame (in this report 2001-2011 or 2002-2012). This indicator is calculated according to this formula:  $((Pop_t - Pop_s) / (Pop_s * (t-s)))$  where t = last available year and s = first available year.

*Total resident population (absolute values)* | The amount of population usually resident in a specified geographic area (municipality)

*Total resident population ageing index* | The ratio between the population aged 65 and more and the population aged under 14 \* 100 ( $P_{65+}/P_{0-14}*100$ ).

*Total fertility rate (per 1,000 women)* | It refers to the number of children that would be born per 1,000 women assuming no female mortality at childbearing age and based on the age-specific fertility rates of a specified country and reference period.

*Women (per 100 residents)* | The amount of women usually resident in a specified geographic area (municipality) calculated per 100 residents.

### Labour market

*Employment rate (per 100, by sex)* | The employment rate of the population aged 15-64 is obtained by the percentage ratio of employed individuals with respect to the population of the same age class. According to the labour force survey, harmonised at European level, a person is defined as employed if, in a specific week, he/she worked at least for one hour in any activity entailing remuneration in money or in kind or was temporarily away from work (for example on holiday, sick leave, or receiving income support while temporarily laid off), but kept his/her job or remained self-employed.

*Employment by NACE sectors (percentage on employed people)* | For each territorial unit the distribution of the employees according to the following classification (economic activity of the establishment where the work is performed). See the following table for the NACE classification in 12 categories.

1	Agriculture
2	Manufacturing
3	Construction

4	Wholesale and retail trade
5	Transportation
6	Accommodation and food service activities
7	Information and communication
8	Financial and insurance activities
9	Professional and support activities, real estate
10	Public administration
11	Education and health
12	Other service activities

*Inactivity rate (per 100, by sex)* | The inactivity rate used is obtained from the percentage ratio of non-participants in the labour force in the 15-64 age group with respect to the corresponding population. "Non-participants in the labour force" are defined as those individuals who are classified as neither being employed nor seeking work.

*Unemployment rate by sex (per 100)* | Unemployed people are those who, during the reference week: (a) had no employment and (b) were available to start work within the next two weeks and (c) had actively sought employment at some time during the previous four weeks. In addition, unemployed people include those who had no employment and had already found a job that would start later. The harmonised unemployment rate provides the number of unemployed people as a percentage of the labour force (the total number of people employed plus unemployed).

## Education

*Population with completed secondary education (per 1,000, by sex)* | The education level attained is classified according to the International Standard Classification of Education (ISCED). The expression 'level successfully completed' is associated with obtaining a certificate or a diploma if there is a certification. In cases where there is no certification, successful completion must be associated with full attendance. In this document, we refer to upper and post-secondary non-tertiary education (ISCED 3-4). ISCED level 3: upper secondary education – generally begins at the end of compulsory education; the initial age is typically 15 or 16 years and entry qualifications and other minimum entry requirements are usually needed; instruction is often more subject-oriented and typical duration varies from two to five years. ISCED level 4: post-secondary non-tertiary education – straddles the boundary between upper secondary and tertiary education; typical examples are programmes designed to prepare pupils for studies at

level 5 or programmes designed to prepare pupils for direct labour market entry.

*Population with completed tertiary education (per 1,000, by sex)* | ISCED level 5 and level 6 are considered for this indicator. ISCED level 5: tertiary education (first stage) – entry normally requires successful completion of level 3 or 4; it includes tertiary programmes with academic orientation which are largely theoretically based and occupation orientation programmes, which are typically shorter and geared towards entering the labour market. ISCED level 6: tertiary education (second stage) – leads to advanced research qualification (Ph.D. or doctorate).

## Population and services

*Distance in km to the nearest hospital* | See definition of number of hospital beds.

*Distance in km to the nearest residential care facility* | See definition of number of residential long-term care facilities (per 1,000 residents).

*Infancy day-care services for children aged under 3 (per 100)* | This indicator refers to the formal care of young children provided by people other than their family or in settings outside of their home. 'Early childhood' is usually defined as before normal school age, which in general differs between countries. However, here we consider the theoretical start at 0 and the end at 2. If data are not available exactly for these age groups, ages must be specified.

*Number of hospital beds (per 1,000 residents)* | Hospitals include licensed establishments that primarily provide medical, diagnostic and treatment services with physician, nursing and other health services to inpatients and specialist accommodation services required by inpatients. The tasks of hospitals may vary by country and are usually defined by legal requirements. In some countries, health care facilities need also a minimum size (such as a number of beds and medical staff to guarantee 24-hour access) in order to be registered as a hospital.

This definition corresponds to code HP.1 of the "System of Health Accounts" ([http://who.int/nha/sha\\_revision/en/](http://who.int/nha/sha_revision/en/)).

*Number of residential long-term care facilities (per 1,000 residents)* | The category of residential long-term care facilities comprises establishments that are primarily engaged in providing residential long-term care that combines nursing, supervisory or other types of care as required by the residents. In these establishments, a significant part of the production process and the care provided is a mix of health and social services, with the

health services being largely nursing care, in combination with personal care services. The medical components of care are, however, much less intensive than those provided in hospitals. This definition of residential long-term care facilities corresponds to code HP.2 of the "System of Health Accounts" ([http://who.int/nha/sha\\_revision/en/](http://who.int/nha/sha_revision/en/)).

Offices of general practitioners (per 1,000 residents) | This item comprises establishments of health practitioners who

hold the degree of a doctor of medicine or a corresponding qualification and are primarily engaged in the independent practice of general medicine. Although in some countries "general practice" and "family medicine" may be considered as medical specialisations, these occupations should always be classified here.

This definition corresponds to code HP.3.1.1 of the "System of Health Accounts" ([http://who.int/nha/sha\\_revision/en/](http://who.int/nha/sha_revision/en/)).



## ANNEX B – DATA SOURCES FOR THE REPORT INDICATORS

### AUSTRIA

- *Demography*
  - Population statistics 1.1.2003-1.1.2013 (Statistik Austria - Statistics Austria)
  - Vital statistics 2002-2012 (Statistik Austria - Statistics Austria)
  - Migration statistics 2003-2012 (Statistik Austria - Statistics Austria)
- *Employment and education*
  - Population Census 2001 (Statistik Austria - Statistics Austria)
  - Register-based Census 2011 (Statistik Austria - Statistics Austria)
- *Population and services*
  - Hospital Statistics 2011 (Austrian Federal Ministry of Health)
  - Register of Physicians 2013 (Austrian Medical Chamber)

### FRANCE

- *Demography*
  - Population census (Insee - National Institute of Statistics and Economic Studies)
  - Register office - Population estimates (Insee - National Institute of Statistics and Economic Studies)
- *Labour Market*
  - Employment Estimates (Insee - National Institute of Statistics and Economic Studies)
  - Continuous employment survey since 2003 (Insee - National Institute of Statistics and Economic Studies)
- *Population and services*
  - Permanent database of facilities/ BPE (Insee - National Institute of Statistics and Economic Studies)
  - National accounts

### GERMANY

- *Demography*
  - Census 2011 (Statistischen Ämter des Bundes und der Länder - Federal Statistical Office and the statistical Offices of the Länder)
  - Population status 2001 (Statistischen Ämter des Bundes und der Länder - Federal Statistical Office and the statistical Offices of the Länder)
- *Employment and education*
  - Census 2011 (Statistischen Ämter des Bundes und der Länder - Federal Statistical Office and the statistical Offices of the Länder)

### ITALY

- *Demography*
  - Population and houses census (Istat - Italian national statistical institute)
  - Survey on the annual demographic balance of the resident population (Istat - Italian national statistical institute)
  - Survey on the annual demographic balance of the foreign resident population and its structure by gender and citizenship (Istat - Italian national statistical institute)
  - Survey on resident population by sex, age and marital status (Istat, Italian national statistical institute)
  - Survey on foreign resident population by sex and age (Istat - Italian national statistical institute)
- *Labour Market*
  - Population and houses census (Istat - Italian national statistical institute)
  - Continuous labour force survey (Istat - Italian national statistical institute)
- *Population and services*
  - Survey on social actions and services of individual and associated municipalities (Istat - Italian national statistical institute)
  - Survey on residential health care facilities (Istat - Italian national statistical institute)
  - Analysis on Ministry of Health data on primary care (Istat - Italian national statistical institute)
  - Hospital beds: Ministry of Health - D.G. of Health Information System - Office of Statistics

### LIECHTENSTEIN

EUROSTAT Database.

### MONACO

IMSEE Monaco Statistics.

### SLOVENIA

- *Demography*
  - Census of population, households and housing (Statistični urad Republika Slovenija - Statistical office of the republic of Slovenia)
  - Quarterly survey on population (Statistični urad Republika Slovenija - Statistical office of the republic of Slovenia)
  - Annual survey on births (Statistični urad Republika Slovenija - Statistical office of the republic of Slovenia)

- Slovenija - Statistical office of the republic of Slovenia)
- Annual survey on deaths ((Statistični urad Republika Slovenija - Statistical office of the republic of Slovenia)
- Annual survey on migration changes (Statistični urad Republika Slovenija - Statistical office of the republic of Slovenia)
- *Labour Market*
  - Census of population, households and housing (Statistični urad Republika Slovenija - Statistical office of the republic of Slovenia)
  - Labour Force Survey (Statistični urad Republika Slovenija - Statistical office of the republic of Slovenia)
- *Population and services*
  - Hospital beds: National Institute of Public Health.
  - Annual statistical survey on pre-school education and care in kindergartens (Statistični urad Republika Slovenija SURS, Statistical office of the republic of Slovenia).

## SWITZERLAND

- *Demography*
  - Statistical Data on Switzerland 2014 (Bundesamt für Statistik - Federal Statistical Office)
  - Die Bevölkerung der Schweiz 2012 – Population in Switzerland 2012 (Bundesamt für Statistik - Federal Statistical Office)
- *Labour market*
  - Population according to gender, citizenship, place of birth and age (Bundesamt für Statistik - Federal Statistical Office)
  - Deaths according to gender, citizenship, marital status and age (Bundesamt für Statistik - Federal Statistical Office)
  - Statistics at municipality level 1981-2010 (Bundesamt für Statistik - Federal Statistical Office)
- *Labour market*
  - Structural analysis of the federal census 2012: population according to employment status (Bundesamt für Statistik - Federal Statistical Office)
  - Resident population above 15 years old according to employment status and Canton (Bundesamt für Statistik - Federal Statistical Office)
  - Unemployment rates at Canton level (Eidgenössisches Departement für Wirtschaft, Bildung und Forschung WBF, Staatssekretariat für Wirtschaft SECO - Federal department for economy, education and research, State secretariat for economic affairs SECO)
- *Education*
  - Population above 15 years old according to higher education status achieved at Canton level (Bundesamt für Statistik - Federal Statistical Office)

## ANNEX C – METHODOLOGICAL APPENDIX

### THEORETICAL AND METHODOLOGICAL ISSUES OF THE MAZZIOTTA – PARETO INDEX

*Matteo Mazziotta and Adriano Pareto, Istat, Italy*

#### Introduction

In the past, social and economic phenomena, such as development, poverty, quality of life, etc., were mainly measured from a unidimensional viewpoint, i.e., by using only one indicator. Recent literature tends to consider these events as complex or multidimensional and characterised by the combination of various indicators. The measurement of complex phenomena is difficult and dangerous since it requires somewhat arbitrary simplifications, is always constrained by limited resources and time, inevitably involves competing and conflicting priorities and rests on a foundation of value preferences that are typically resolved by pragmatic considerations, disciplinary biases and measurement traditions. Nevertheless, the selection of the individual indicators representing the phenomenon and the choice of the 'best' aggregation function can be consistently combined in order not to lose much statistical information. The aim of this section is to present a generalised composite index denoted as MPI (Mazziotta-Pareto Index), suitable for components that cannot be substituted, i.e. that all have the same weight (importance) and where offset is not allowed (Munda and Nardo, 2005).

#### Steps towards the Synthesis of Indicators

In scientific literature, many studies by eminent authors concern the use of composite indices to measure complex, economic and social phenomena about geographical areas. The main problems in this approach have to do with the choice of the theoretical framework, data availability, the selection of the most representative indicators and their treatment in order to compare and aggregate them.

The steps for setting up a composite index can be summarised as follows:

a) *Define the phenomenon to be measured.* The definition of the concept should give a clear sense of what is being measured by the composite indicator. It should refer to

a theoretical framework linking various subgroups and underlying indicators.

- b) *Selecting a group of individual indicators.* Ideally, indicators should be selected according to their relevance, analytical soundness, timeliness, accessibility, etc. (OECD, 2008). The selection step is the result of a trade-off between possible redundancies caused by overlapping information and the risk of losing information.
- c) *Normalising individual indicators.* This step aims to make indicators comparable. Normalisation is required prior to any data aggregation as the indicators in a dataset often have different measurement units. Therefore, it is necessary to bring the indicators to the same standard by transforming them into pure dimensionless figures. Another reason for normalisation is the fact that some indicators may be positively correlated with the phenomenon to be measured (positive 'polarity'), whereas others may be negatively correlated with it (negative 'polarity'). We want to normalise the indicators so that an increase in the normalised indicators corresponds to an increase in the composite index. There are various normalisation methods, such as ranking, rescaling, standardisation (or z-scores) and 'distance' to a reference. When assigning the same 'importance' to each indicator, a transformation criterion must be applied that makes the indicators independent from the unit of measurement and variability, e.g., standardisation.
- d) *Aggregating normalised indicators.* The combination of all components forms one or more composite indices (mathematical functions). Different aggregation methods are possible. The most used are additive methods that range from summing up unit ranking in each indicator to aggregating weighted transformations of the original indicators. Multivariate techniques as Principal Component Analysis (Dunteman, 1989) and distance measures as Wroclaw Taxonomic Method (Harbison et al., 1970) are also often used.

There are several issues with this approach, such as finding data, losing information and researcher arbitrariness with respect to: (i) selection of indicators, (ii) normalisation, (iii) aggregation and weighting. In spite of these problems, the advantages are clear and can be summarised as: (a) unidimensional measurement of the phenomenon; (b) immediate availability; (c) simplification of geographical data analysis.

Many works and analyses have won over the critics and the scientific community concluded that it is impossible to

obtain a 'perfect method' with universally efficient outcomes. Data and specific targets of the work must gradually define the 'best method' in terms of robustness, reliability and consistency of solutions.

## The Composite Index

Additive methods for constructing composite indices imply requirements and properties which are often not desirable or difficult to meet. For example, they assume a full substitutability among the components of the index: a deficit in one dimension can be counterbalanced by a surplus in another. However, full compensability among individual indicators is generally not acceptable and a 'balanced' distribution of the values is required.

The proposed method wants to supply a composite measure of a set of indicators that are considered 'non-substitutable', i.e., all the dimensions of the phenomenon must be 'balanced' (Mazziotta and Pareto, 2011). The MPI is designed to satisfy the following properties: (i) normalisation of the indicators by a specific criterion that deletes both the unit of measurement and the variability effect (Delvecchio, 1995); (ii) synthesis independent from an 'ideal unit', since a set of 'optimal values' is arbitrary, non-univocal and can vary over time (Aureli Cutillo, 1996); (iii) simplicity of computation; (iv) ease of interpretation.

These properties can be satisfied by the following approach. It is known that distributions of different indicators, measured in a different way, can be compared by the transformation in standard scores. Therefore, individual indicators are converted into a common scale with a mean of 100 and a standard deviation of 10: the transformed values will fall approximately in the 70-130<sup>30</sup> range. In this type of normalization the 'ideal vector' is the set of mean values and the units above average (values greater than 100) and those below average (values under 100) can be easily identified. Moreover, normalising by standard scores helps release the indicators from their variability and assign them the same weight.

In such a context, a penalty coefficient is introduced that is a function, for each unit, of the indicator variability in relation to the mean value ('horizontal variability'): this variability is measured by the coefficient of variation. The proposed approach penalizes the score of each unit (the arithmetic mean of the standardised values) with a quantity that is directly proportional to the 'horizontal variability'. The purpose is to favour the units that, mean being equal,

have a greater balance among the indicator values (Palazzi, 2004).

The method provides a 'robust' measure that is less 'sensitive' to the inclusion or exclusion of individual indicators (Mazziotta C. et al., 2010).

The steps for computing MPI are the following.

### 1) Normalisation

Let  $X=\{x_{ij}\}$  be the matrix with  $n$  rows (statistical units) and  $m$  columns (individual indicators) and let  $M_{x_j}$  and  $S_{x_j}$  denote the mean and the standard deviation of the  $j$ -th indicator:

$$M_{x_j} = \frac{\sum_{i=1}^n x_{ij}}{n}; \quad S_{x_j} = \sqrt{\frac{\sum_{i=1}^n (x_{ij} - M_{x_j})^2}{n}}$$

The standardised matrix  $Z=\{z_{ij}\}$  is defined as follows:

$$z_{ij} = 100 \pm \frac{(x_{ij} - M_{x_j})}{S_{x_j}} 10$$

where the sign  $\pm$  is the 'polarity' of the  $j$ -th indicator, i.e., the sign of the relation between the  $j$ -th indicator and the phenomenon to be measured (+ if the individual indicator represents a dimension considered positive and - if it represents a dimension considered negative).

### 2) Aggregation

Let  $cv_i$  be the coefficient of variation for the  $i$ -th unit:

$$cv_i = \frac{S_{z_i}}{M_{z_i}}$$

where:

$$M_{z_i} = \frac{\sum_{j=1}^m z_{ij}}{m}; \quad S_{z_i} = \sqrt{\frac{\sum_{j=1}^m (z_{ij} - M_{z_i})^2}{m}}$$

30. According to the Bienaymé-Cebycev theorem, at least 89% of the total terms of the distribution fall within the 70-130 range.

Then, the generalised form<sup>31</sup> of MPI is given by:

$$\text{MPI}_i^{+/-} = \mathbf{M}_{z_i} \pm \mathbf{S}_{z_i} \mathbf{c} \mathbf{v}_i$$

where the product  $\mathbf{S}_{z_i} \mathbf{c} \mathbf{v}_i$  is the 'penalty' and the  $\pm$  sign depends on the kind of phenomenon to be measured.

If the composite index is 'increasing' or 'positive', i.e., increasing values of the index correspond to positive variations of the phenomenon (e.g., the socio-economic development), then MPI- is used. Vice versa, if the composite index is 'decreasing' or 'negative', i.e. increasing values of the index correspond to negative variations of the phenomenon (e.g. poverty), then MPI+ is used.

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## PRINCIPAL COMPONENT ANALYSIS AND CLUSTER ANALYSIS: SOME METHODOLOGICAL NOTES

*Mauro Albani, Giorgia Capacci, Antonella Guarneri - ISTAT, Italy*

Statistical methodology offers a wide range of methods to synthesise the values of different indicators observed on a certain number of statistical units. An important support can be provided by the methods that classify the units, in order to be able to easily describe them with reference to the specific characterisation that at the same time is shared by some units and separates them from the others.

From a strictly methodological point of view, principal component analysis and cluster analysis are two statistical methods, respectively for reducing the number of a certain set of variables – whose values were observed on a certain number of statistical units - and for grouping some statistical units, on the basis of the values taken in each unit by a certain number of variables. Both methods are applicable to and indicated for quantitative variables (interval scale).

Principal component analysis is often performed before a regression, to avoid using correlated variables or before clustering the data to have a better overview of the variables.

### Principal component analysis

Principal component analysis (PCA) is a multivariate statistical technique for quantitative variables that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components.

Since the observed variables have been standardized to have a variance of one, each of them contributes one unit of variance to the "total variance" in the dataset. Therefore, the total variance will always be equal to the number of observed variables being analysed, and the components that are extracted in the analysis will partition this variance.

The number of principal components (PC) is less than or equal to the number of original variables. This transformation implies that the first principal component has the largest possible variance (that is, accounts for as much of the variability in the data as possible), and each succeeding component has the highest variance possible under the

31. *It is a generalized form since it includes 'two indices in one'.*

constraint that it is orthogonal to (i.e. uncorrelated with) the preceding components. Principal components are orthogonal because they are the eigenvectors of the symmetric covariance matrix. PCA is sensitive to the relative scaling of the original variables.

The method is mostly used as a tool in exploratory data analysis and for making predictive models. PCA can be done by means of eigenvalue decomposition of a data covariance (or correlation) matrix or singular value decomposition of a data matrix, usually after mean centering (and normalising or using Z-scores) the data matrix for each attribute (Abdi, H., & Williams, L.J., 2010). The results of a PCA are usually discussed in terms of component scores, sometimes called factor scores (the transformed variable values corresponding to a particular data point), and loadings (the weight by which each standardised original variable should be multiplied to get the component score) (Shaw P.J.A., 2003).

PCA is the simplest of the true eigenvector-based multivariate analyses. Often, its operation can be thought of as revealing the internal structure of the data in a way that best explains data variance. If a multivariate dataset is displayed as a set of coordinates in a high-dimensional data space (1 axis per variable), PCA can supply the user with a lower-dimensional picture, a projection or "shadow" of this object when viewed from its most informative viewpoint. This is done by using only the first few principal components so that the dimensionality of the transformed data is reduced. A single scatter plot summarising all the information provided by the method can be built in order to look at the data on a two-dimensional map and to identify trends.

Graphically displayed variables are also called "the correlation circle". The correlation circle is useful in interpreting the meaning of the axes. In this graphical display, each variable is shown as a vector, which signals the combined strength of the relationships between the variable and two PCs (vector length) and whether these relationships are positive or negative (vector direction). The angle between two vectors shows the degree of correlation between two measured variables. A right angle indicates that two variables are completely uncorrelated; zero or 180 degrees between two variables indicates complete positive or negative correlation.

## Cluster Analysis

Cluster analysis is a multivariate method which aims at classifying a sample of subjects (or objects) on the basis of a set of measured variables into a number of different groups in order to place similar subjects in the same group.

Cluster analysis is able to produce a snapshot of the variables involved, classifying the individuals according to the maximum homogeneity found within each group. Because of its characteristics of synthesis, a cluster analysis is more immediate than a PCA, though very often the two approaches are combined.

A number of different methods can be used to carry out a cluster analysis. These analyses can be divided into two major groups based on the (hierarchical and non-hierarchical) aggregation strategy chosen. Often, however, a mixed strategy of classification is chosen that limits the effects of the constraints imposed by both procedures mentioned above. In this case, the set of elements to be classified is first aggregated according to a non-hierarchical strategy (to mobile centres) producing a partition with a large number of classes which, in turn, becomes the new set of elements to be classified. This time, however, the aggregation strategy is hierarchical. This second step can only enhance previously obtained classes.

The Ward's method was applied to the hierarchical procedure. According to this method, all possible pairs of clusters are combined and the sum of the squared distances within each cluster is calculated. This is then summed up over all clusters. The combination that gives the lowest sum of squares is chosen. This method tends to produce clusters of approximately equal size, which is not always desirable. It is also quite sensitive to outliers. The Ward's method is one of the most popular methods along with the average linkage method.

The method of hierarchical cluster analysis is best explained by describing the algorithm or set of instructions, which creates the dendrogram results. The horizontal axis of the dendrogram represents the distance or dissimilarity between clusters. The vertical axis represents the objects and clusters. Each joining of two clusters is represented on the graph by splitting a horizontal line into two horizontal lines. The horizontal position of the split shown by the short vertical bar represents the distance between the two clusters.

The final grouping of clusters (also called the final partition) is the grouping of clusters which will identify groups whose observations or variables present common characteristics. The decision about final grouping is also called cutting the dendrogram and consists in drawing a line across the dendrogram to specify final grouping. The following steps can help to determine where to cut the dendrogram. The step where values suddenly change might identify a good point for cutting the dendrogram. The final clusters must show the most similar characteristics inside the same group and be as different as possible from the other clusters.

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## ANNEX D – MAPS OF GERMANY AND SWITZERLAND ON LABOUR MARKET AND EDUCATION, DATA AT NUTS 3 LEVEL

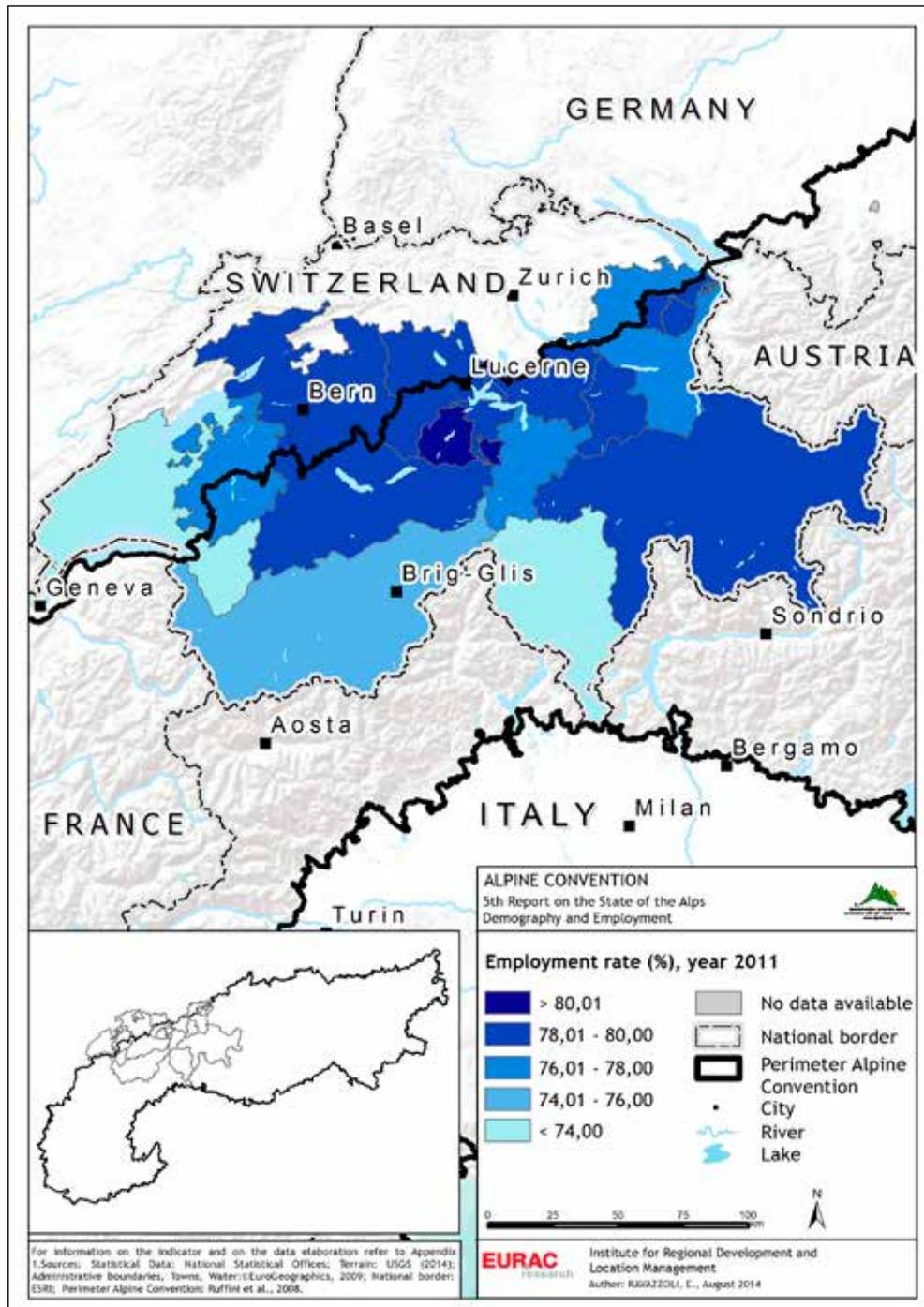


Figure D1: Employment rate in Switzerland (%).

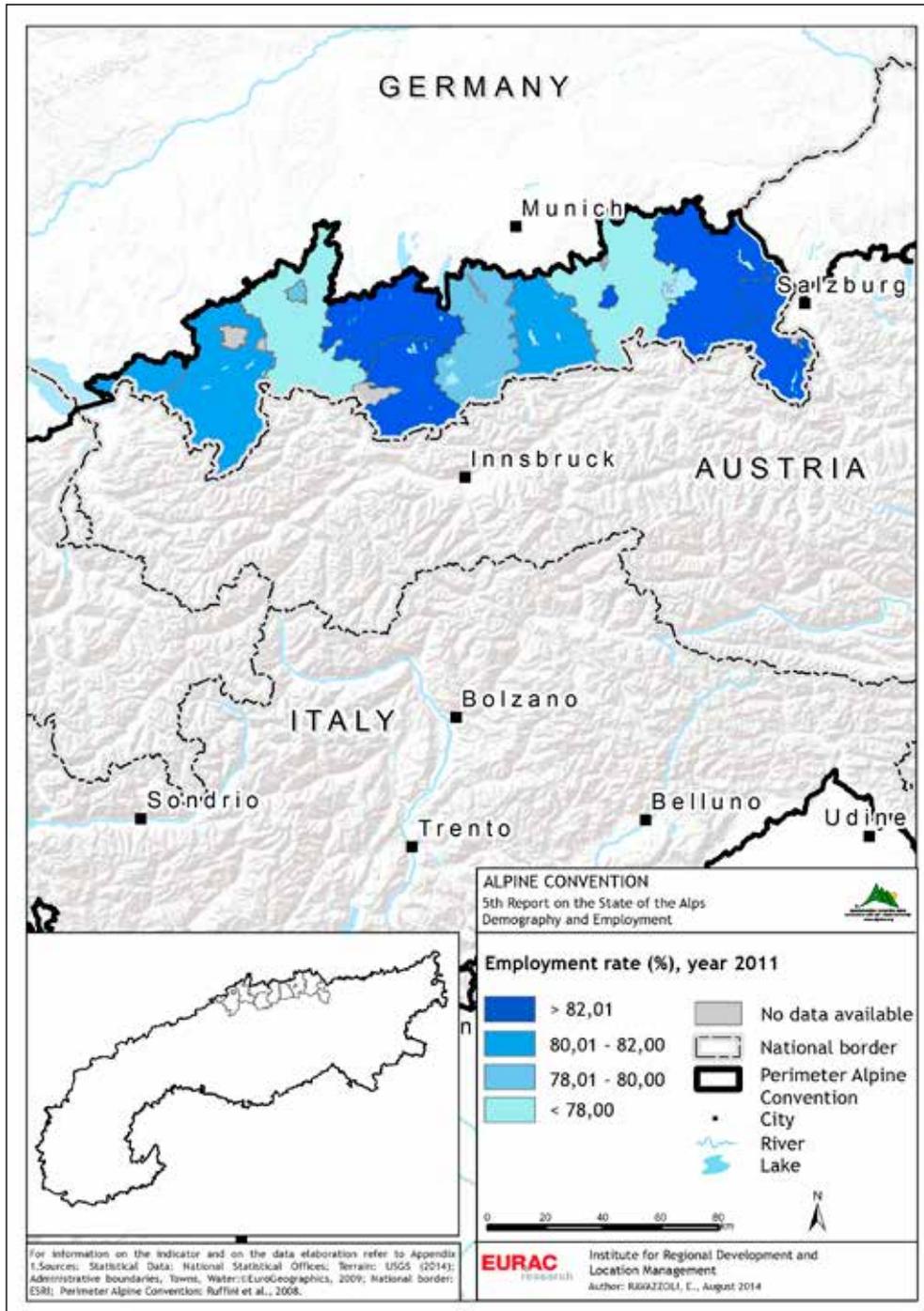


Figure D2: Employment rate in Germany (%).

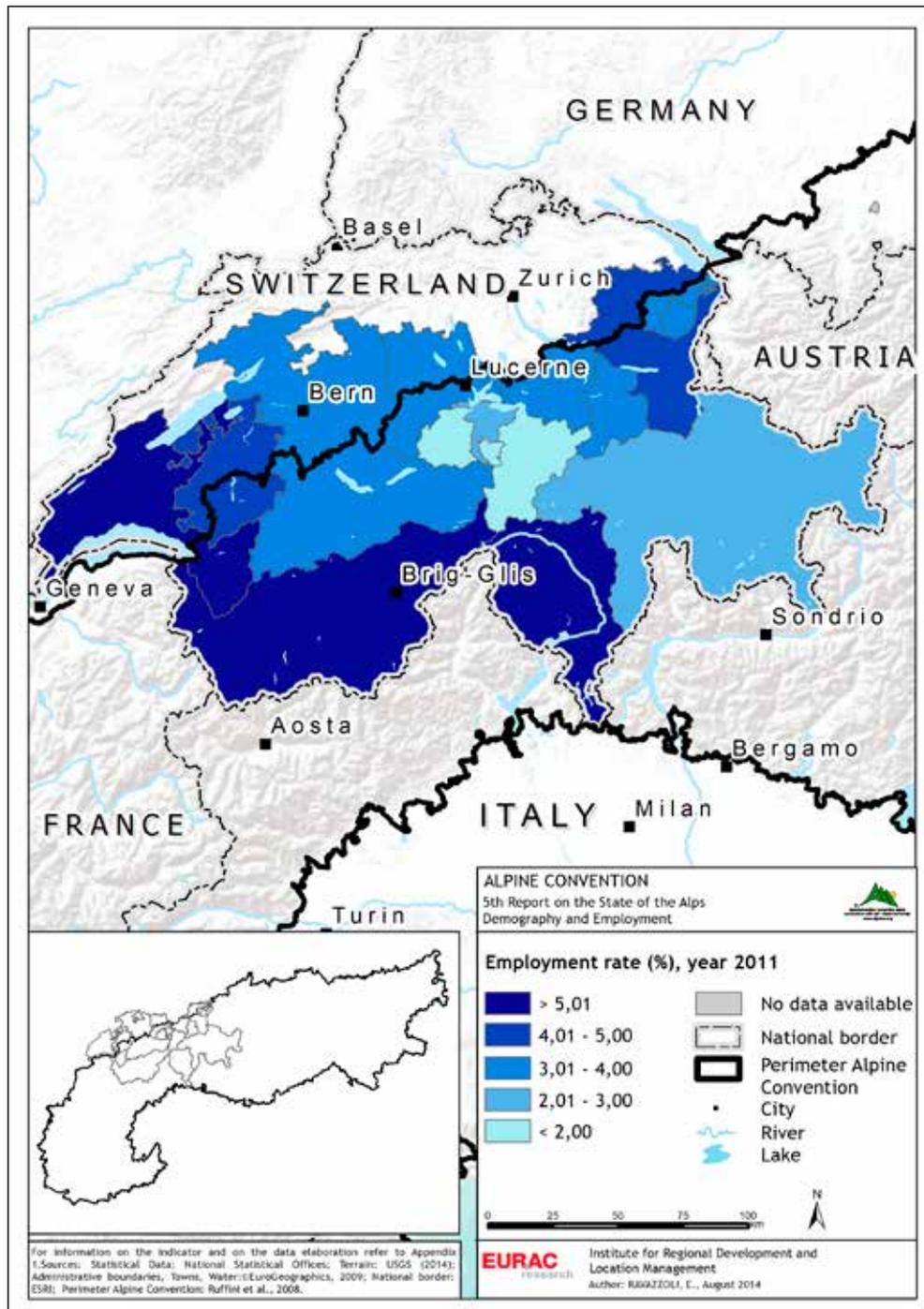


Figure D3: Unemployment rate in Switzerland (%).

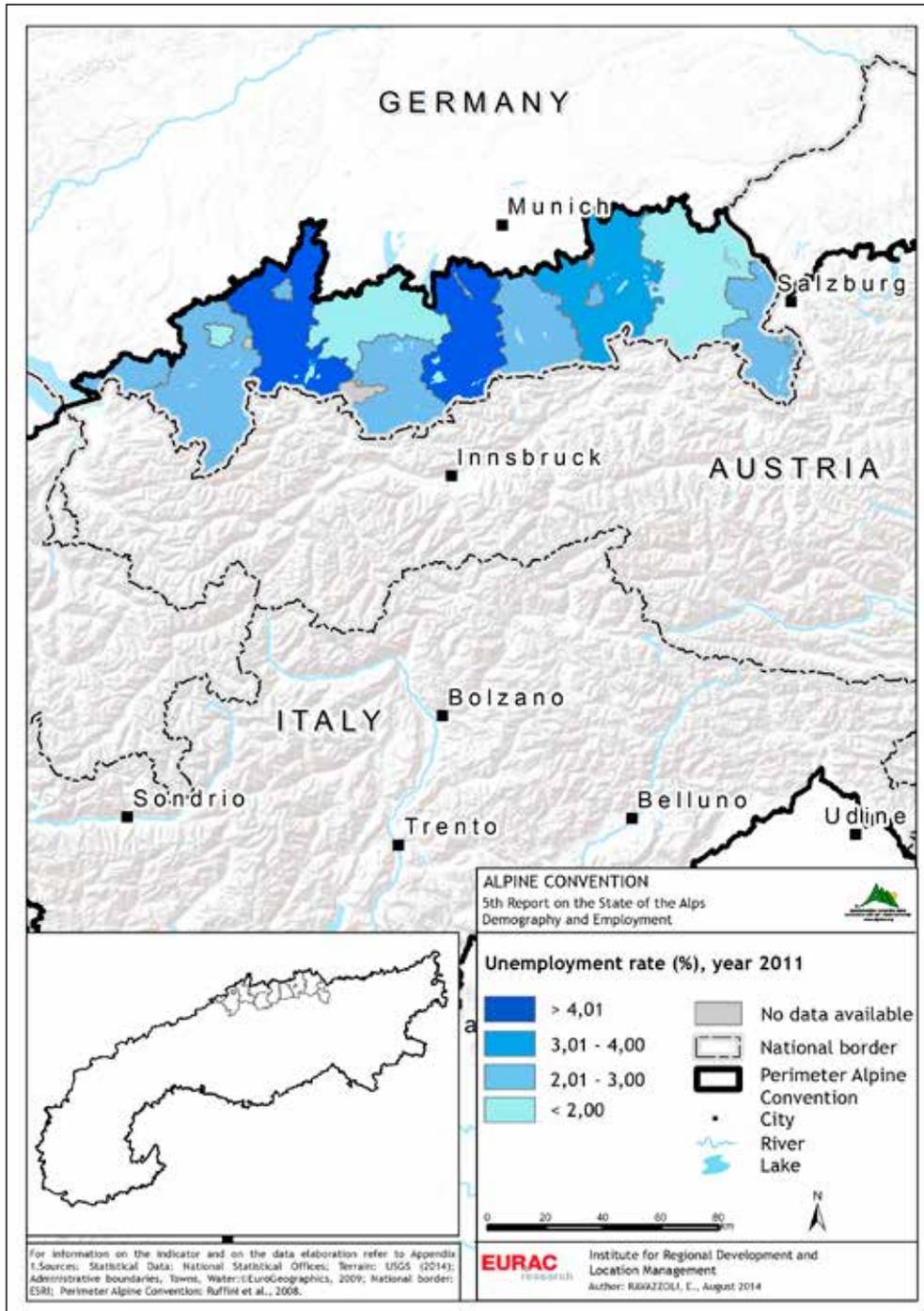


Figure D4: Unemployment rate in Germany (%).

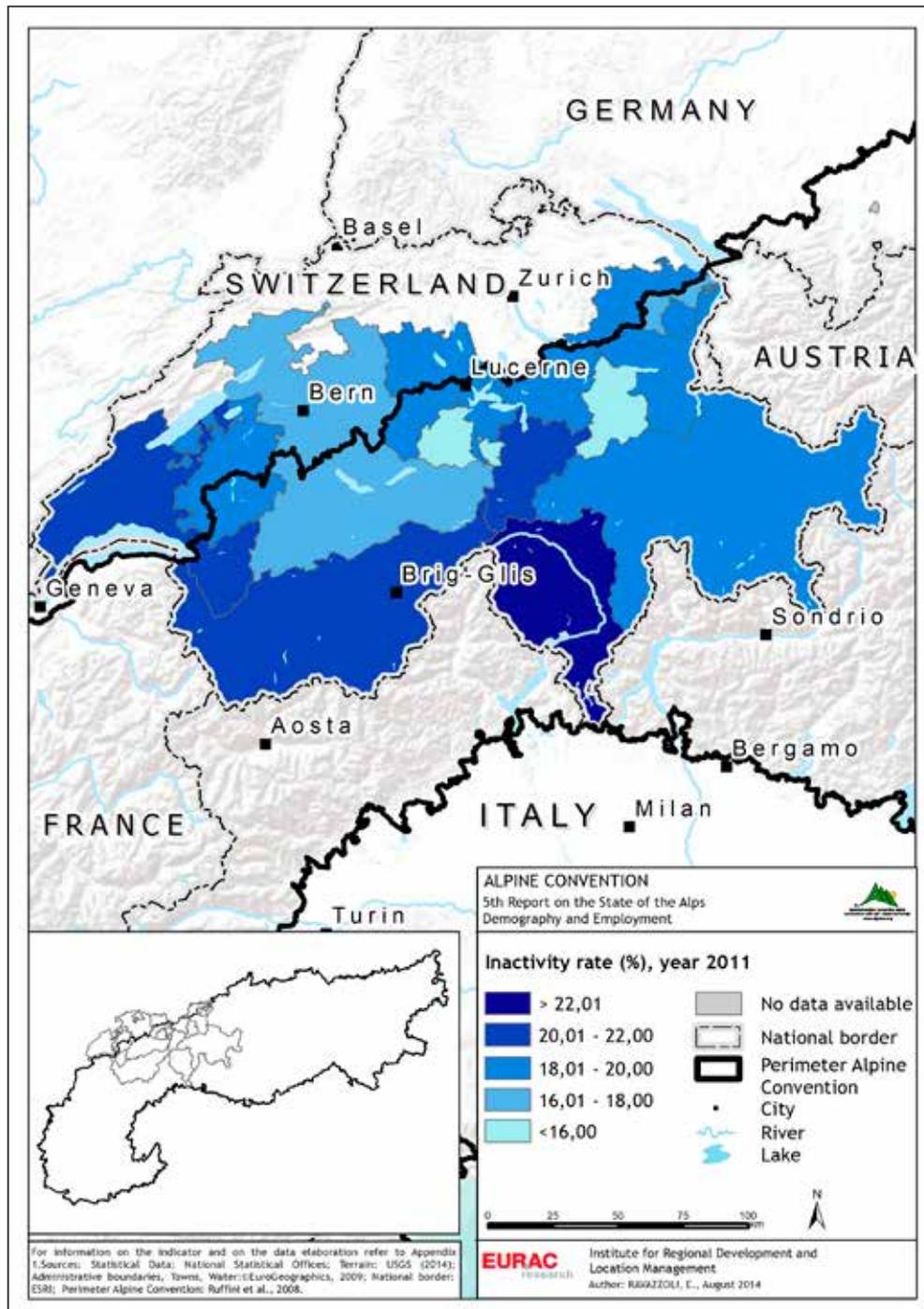


Figure D5: Inactivity rate in Switzerland (%).

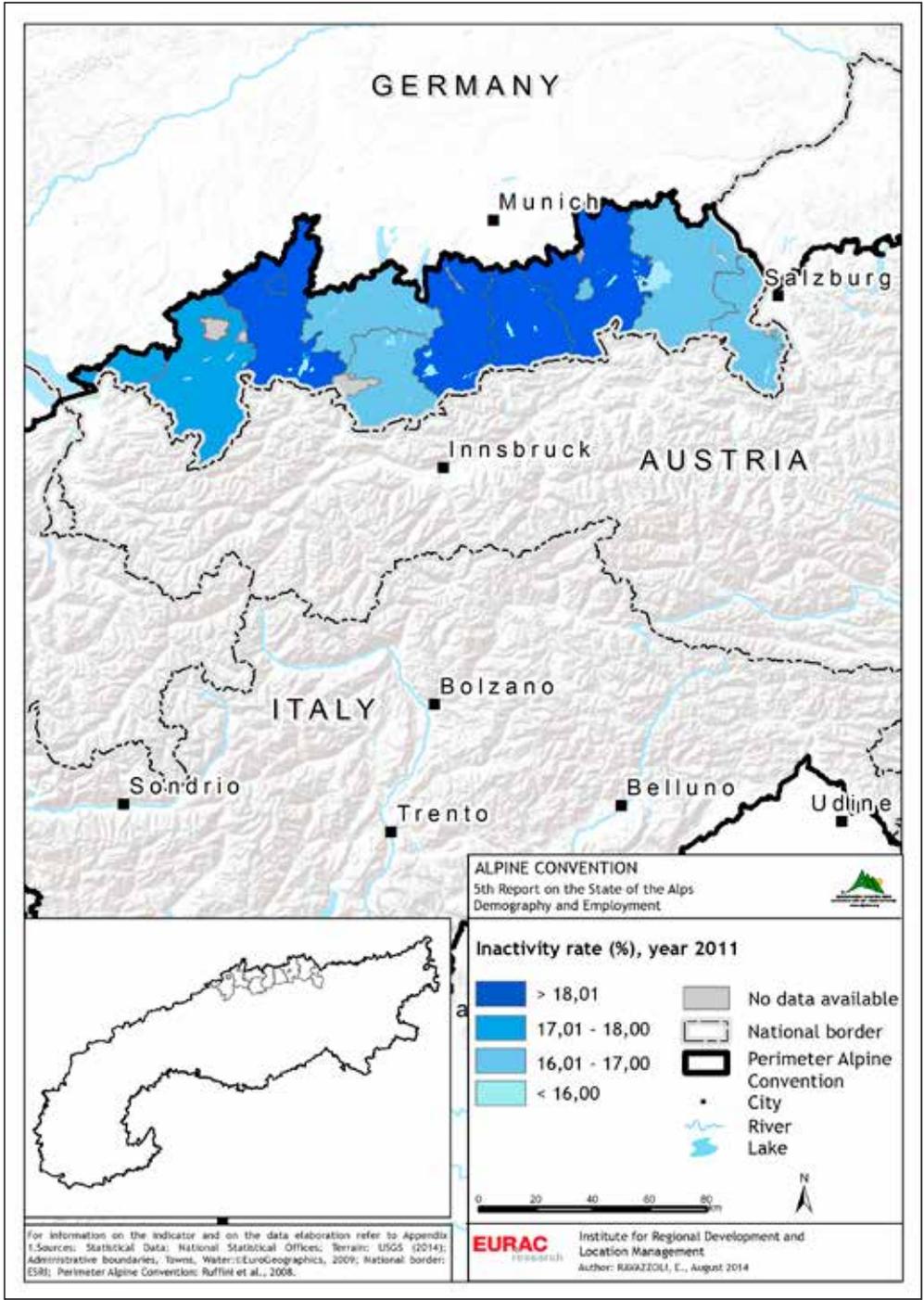


Figure D6: Inactivity rate in Germany (%).

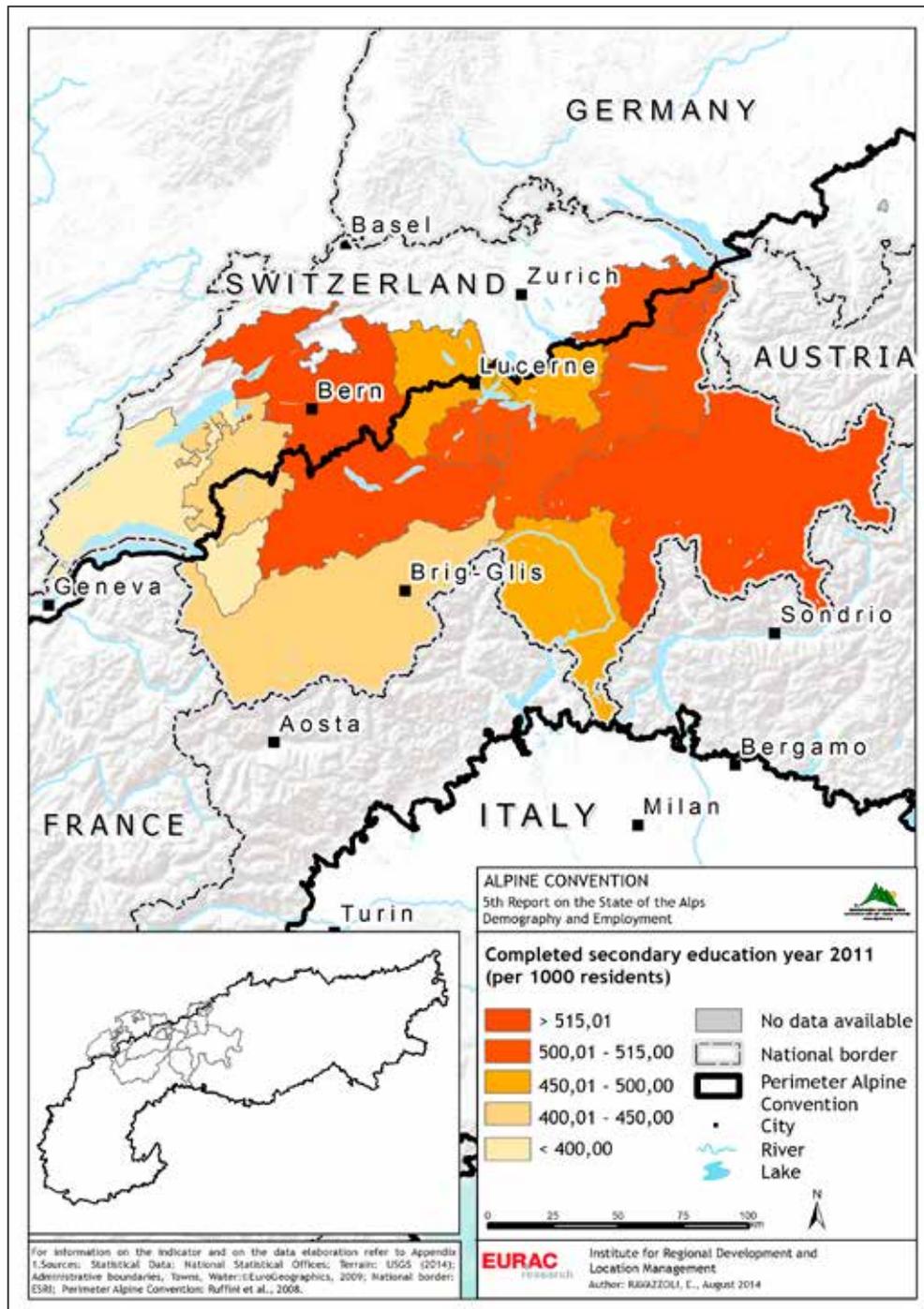


Figure D7: Completed secondary education in Switzerland (per 1,000 inhabitants).

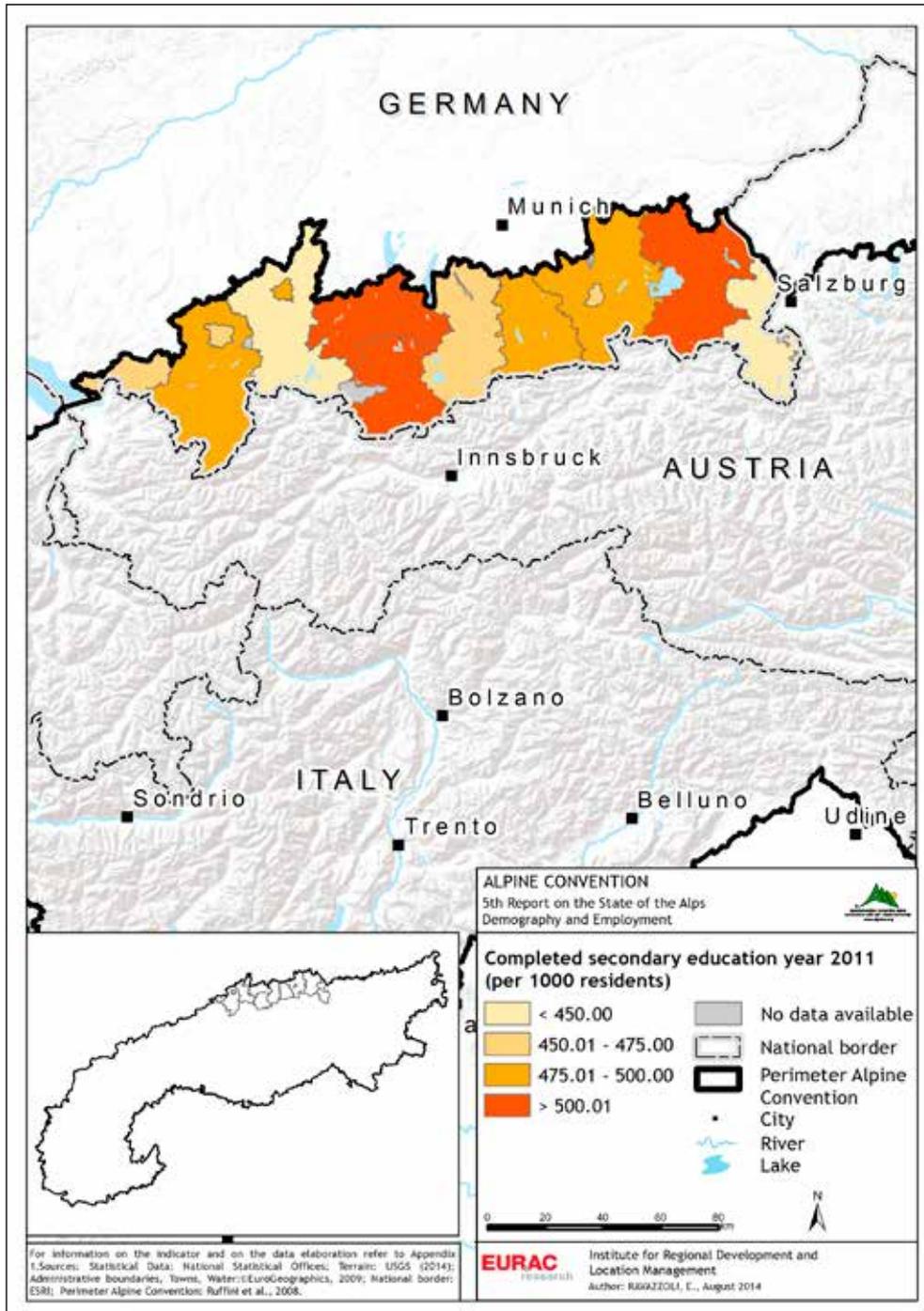


Figure D8: Completed secondary education in Germany (per 1,000 inhabitants).

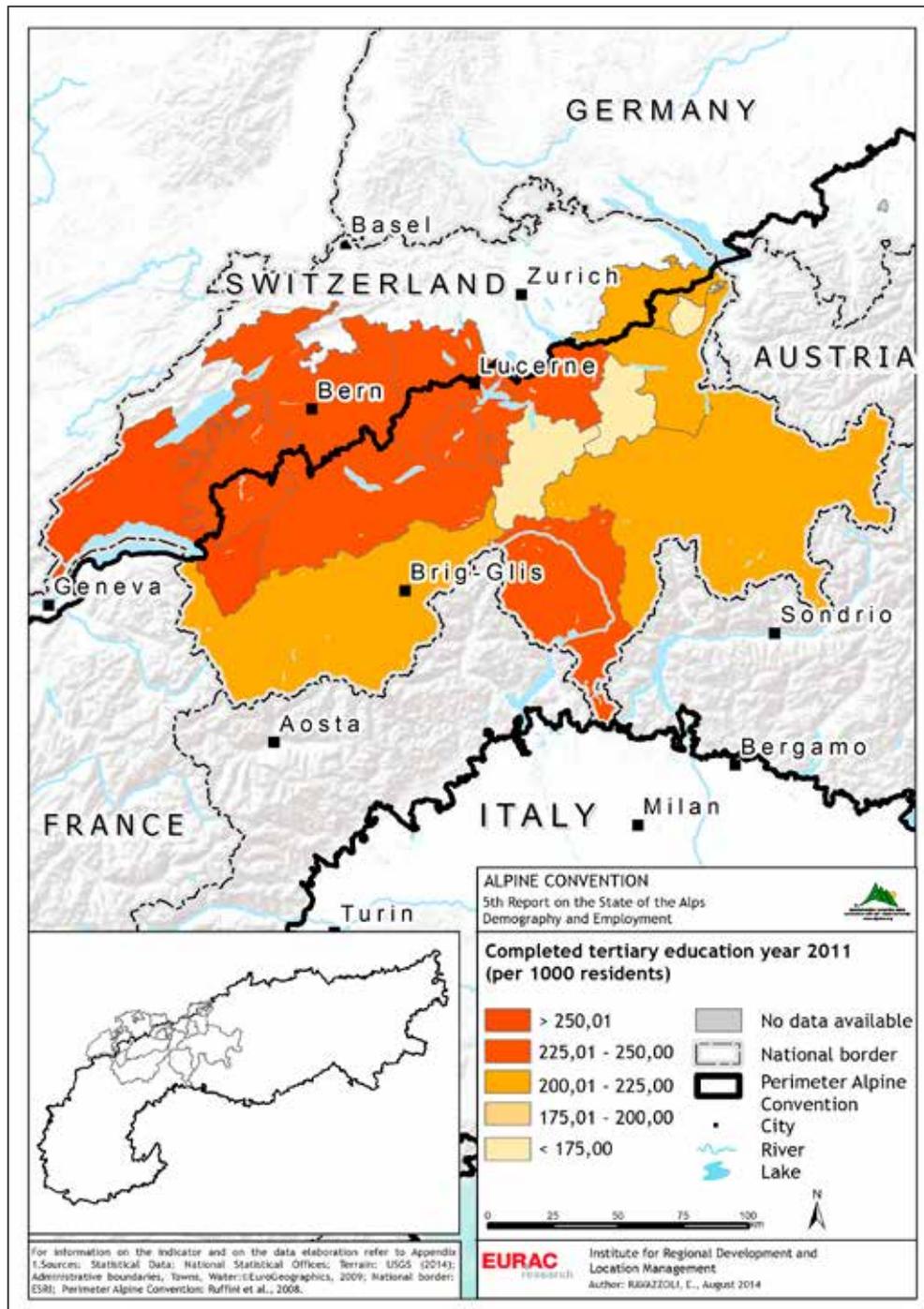


Figure D9: Completed tertiary education in Switzerland (per 1,000 inhabitants).

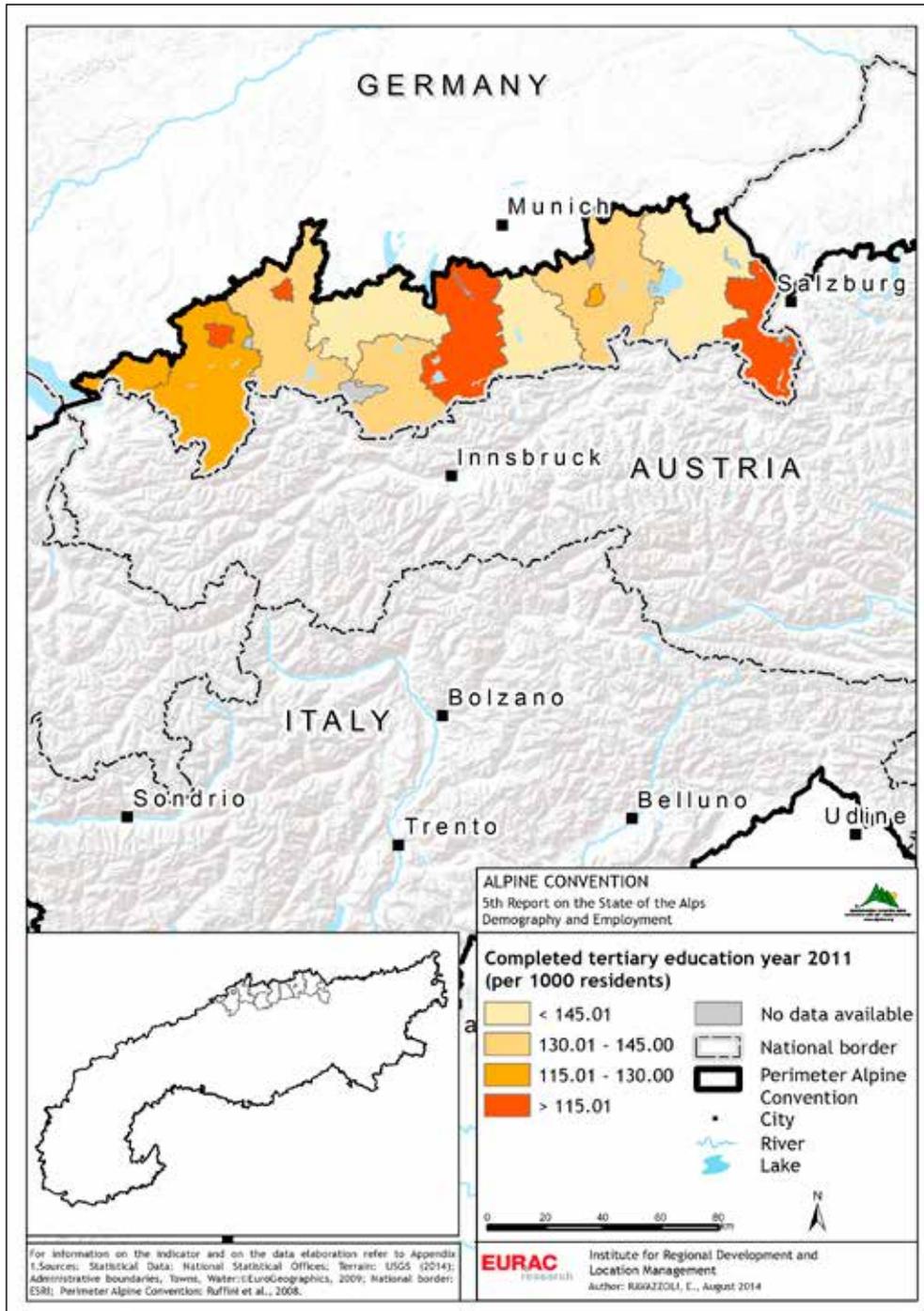
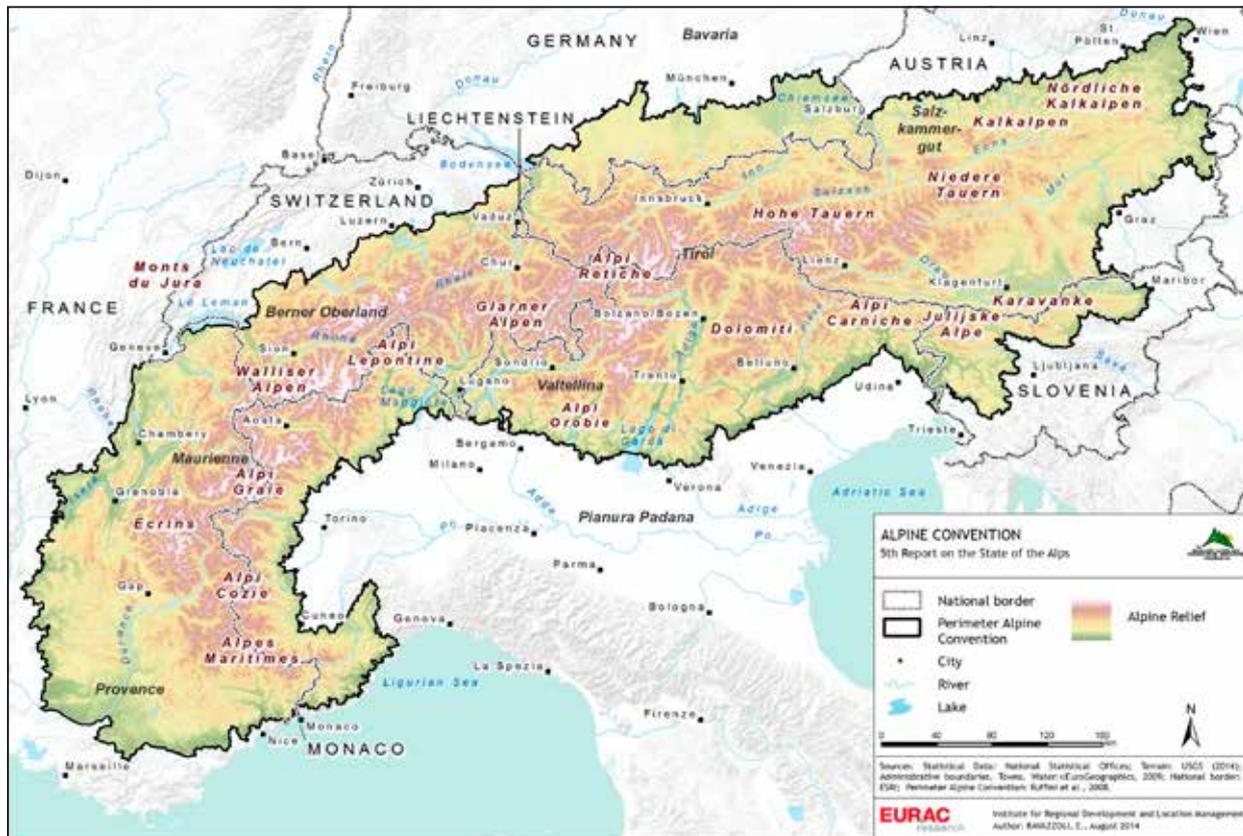


Figure D10: Completed tertiary education in Germany (per 1,000 inhabitants).

## ANNEX E – MAP OF THE ALPINE CONVENTION







[www.alpconv.org](http://www.alpconv.org)

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