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Abstract: The impact of COVID-19 on economies in the Alpine region

The COVID-19 pandemic has hit Europe in late winter/early spring 2020. Government restrictions and voluntary individual changes in consumer and mobility behavior led to a sharp decline of nonessential activities. For 2020, European Union Gross Domestic Product (GDP) is expected to decrease by about 8 %.[1] Therefore, unprecedented recovery measures have been taken to support the economy, i.e., EU member states will conjointly borrow money to finance a one-off recovery instrument ('Next Generation EU'). Until recently, it remained however unclear whether the additional money will be used to return to the pre-COVID-19 status quo or to support future-oriented transition processes and shape long-term structural change towards more sustainable economies and societies, supporting the transformation process to a 'Green Economy'. This paper looks into the diversity of territorial impacts of the pandemic and drivers behind this diversity. Furthermore, recovery measures relevant for the Alpine region are presented as well as insights from the four pilot regions involved in the current project „Alpine Convention: Sectoral development of Green Economy in the Alpine Region" are shared. As outlook, possible future developments and sector-specific access points for action are provided. Thereby, the mentioned access points are neither fundamentally new nor exhaustive. The pandemic intensifies the challenges deriving from unsustainable developments. The crisis increases their visibility and actual impact. As consequence, the increasing awareness among citizens as well as decision makers might trigger new momentum for change towards more sustainable developments in the Alps.

Kurzbeschreibung: Die Auswirkungen von COVID-19 auf die Volkswirtschaften im Alpenraum

Die COVID-19-Pandemie hat Europa im Spätwinter/Frühjahr 2020 getroffen. Nicht nur staatliche Restriktionen, sondern auch freiwillige individuelle Veränderungen im Konsum- und Mobilitätsverhalten führten zu einem starken Rückgang vor allem der nicht lebensnotwendigen Aktivitäten. Für das Jahr 2020 wird ein Rückgang des Bruttoinlandsprodukts (BIP) in der Europäischen Union um etwa 8 % erwartet[2]. Daher wurden beispiellose Konjunkturmaßnahmen ergriffen, um die Wirtschaft zu stützen, u.a. werden die EU-Mitgliedsstaaten gemeinsam Geld leihen, um ein einmaliges Konjunkturprogramm zu finanzieren ("Next Generation EU"). Bislang ist jedoch zum Teil noch unklar, inwieweit die zusätzlichen Gelder dazu verwendet werden, um zum Status quo vor COVID-19 zurückzukehren oder um zukunftsorientierte Übergangsprozesse voranzubringen und den langfristigen Strukturwandel hin zu nachhaltigeren Volkswirtschaften und Gesellschaften zu gestalten und damit die Transformation zu einer ‚Grünen Wirtschaft' zu unterstützen. In diesem Beitrag wird die Vielfalt der territorialen Auswirkungen der Pandemie und die Treiber hinter dieser Vielfalt betrachtet. Außerdem werden für den Alpenraum relevante Wiederaufbaumaßnahmen und Erkenntnisse aus den vier Pilotregionen vorgestellt, die im Vorhaben „Alpenkonvention: Sektorale Entwicklung der Grünen Wirtschaft im Alpenraum" beteiligt sind. Als Ausblick werden mögliche zukünftige Entwicklungen und sektorspezifische Ansatzpunkte für Maßnahmen präsentiert. Dabei sind die genannten Ansatzpunkte weder grundsätzlich neu noch erheben sie einen Anspruch auf Vollständigkeit. Die Pandemie verschärft die Herausforderungen, die sich aus nicht nachhaltigen Entwicklungen ergeben. Die Krise erhöht deren Sichtbarkeit und tatsächliche Auswirkungen. Infolgedessen könnte das zunehmende Bewusstsein der Bürger*innen sowie der Entscheidungsträger*innen eine neue Dynamik für Wandel hin zu nachhaltigeren Entwicklungen in den Alpen auslösen.

[1] Additional remark: decrease in the EU finally was 6.3% (Source: https://immigrantinvest.com/en/insider/eu-economy-stats-2020/ -08.06.2021)
[2] Ergänzung: Rückgang des BIP in der EU schließlich bei 6,3% (Quelle: https://immigrantinvest.com/en/insider/eu-economy-stats-2020/ -08.06.2021)

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CF	Cohesion Fund
CRII	Coronavirus Response Investment Initiative
CRII+	CRII Plus
ERDF	European Regional Development Fund
ESF	European Social Fund
ESIF	European Structural and Investment Funds
GDP	Gross Domestic Product
GEAP	Green Economy Action Programme for the Alpine region
RRF	The Recovery and Resilience Facility
RSA6	Sixth report on the State of the Alps
ST	Swiss Tourism
UNCEM	National Union of Mountain Communities

Summary

Due to interventions and measures coming along with COVID-19, Europe faces the deepest recession since the end of World War II. But not all economies are affected in the same way. The impacts of the COVID-19 pandemic show a strong territorial diversity between and within countries, concerning the health, the fiscal and the economic impact.

This paper looks into the diversity of territorial impacts of the pandemic and drivers behind this diversity. First assessments show that regions in the Alps are particularly sensitive to the shock of the pandemic. First assessments also indicate that several regions within the Alpine region are among those regions in their respective countries that will be hit hardest by the economic recession. Following the outcome of statistical analyses, three drivers explain most of the differences in the economic impact: Strictness of containment measures, economic structure and government quality. Clear differences between regions and countries within the Alpine region exist with regard to the above drivers. Hence, the impact of COVID-19 is also expected to differ considerably within the Alpine region.

Furthermore, recovery measures relevant for the Alpine region are presented. With regard to tourism, transport and energy, EU Cohesion Policy programmes in the Alpine region have made only limited use of the flexibility allowed for by the Coronavirus Response Investment Initiatives. The economic responses to the COVID-19 pandemic differ significantly between countries and regions in the Alpine region. Most countries responded with immediate support measures to mitigate short-term income and job losses and ensure liquidity. National and regional recovery measures put only partly emphasis on environmental concerns or sustainable economic development.

In the four pilot regions, Euregio Zugspitze-Wetterstein-Karwendel (DE/AT), Goms (CH), Diois (FR) and Soča valley (SI), the observed impact of COVID-19 is twofold: On the one hand the immediate economic pressure has led to short-term responses and to a decrease in the willingness to go for more sustainable business models. On the other hand, also structural changes in different economic sectors could be observed, many of which had been ongoing already before the crisis. In all pilot regions, the awareness for a more sustainable economy and way of life is high and increased in 2020. Nevertheless, no common understanding exists so far on how the recovery process should look like. Promising top-down programmes as well as bottom-up initiatives started in all four pilot regions. Especially local and regional initiatives have the potential for long-lasting structural change and real transformation. The above ambiguity in impacts and policy responses implies a high degree of uncertainty about future perspectives for a greener and more sustainable economy in the four pilot regions.

The COVID-19 pandemic is an unprecedented challenge and disruption. Because of a high degree of uncertainty, little is known about the future. Different futures seem plausible – from a permanent crisis to a fundamental paradigm shift towards more sustainability. Uncertain times challenge our thinking and require us to scrutinize our practices and priorities. Hence, they also offer momentum for societies to re-orientate and explore new pathways. Policies that focus on environmental protection, new technologies and sustainable innovation can strengthen the sustainable dimension of recovery measures. They need to bring together environmental and social concerns and need to be based on solidarity, cooperation and continuous monitoring. In how far recent policy measures will fulfil the above preconditions is unclear. Still, the COVID-19 pandemic intensifies the impact and increases the visibility of unsustainable developments in key economic sectors. This might trigger new momentum for change.

Zusammenfassung

Aufgrund von Interventionen und Maßnahmen im Zusammenhang mit COVID-19 steht Europa vor der tiefsten Rezession seit dem Zweiten Weltkrieg. Aber nicht alle Wirtschaftszweige sind gleichermaßen betroffen. Die gesundheitlichen, steuerlichen und wirtschaftlichen Auswirkungen der COVID-19-Pandemie unterscheiden sich stark zwischen und innerhalb der Länder.

In diesem Bericht wird die Vielfalt der territorialen Auswirkungen der Pandemie und deren Ursachen untersucht. Erste Untersuchungen zeigen, dass Regionen in den Alpen besonders empfindlich auf den Schock der Pandemie reagieren. Sie zeigen zudem, dass mehrere Regionen in ihren jeweiligen Ländern zu denjenigen Regionen gehören, die von der Rezession am stärksten betroffen sind. Nach den Ergebnissen statistischer Auswertungen erklären drei Treiber die meisten Unterschiede: Strenge der Eindämmungsmaßnahmen, Wirtschaftsstruktur und Regierungsqualität. Hinsichtlich der oben genannten Treiber bestehen deutliche Unterschiede zwischen Regionen und Ländern im Alpenraum. Daher ist auch innerhalb des Alpenraums mit deutlich unterschiedlichen Auswirkungen von COVID-19 zu rechnen.

In den Bereichen Tourismus, Verkehr und Energie haben die Programme der EU-Kohäsionspolitik im Alpenraum nur begrenzt von der Flexibilität Gebrauch gemacht, die die Investitionsinitiativen zur Reaktion auf das Coronavirus ermöglichen. Die Alpenstaaten reagierten zudem mit unterschiedlichen eigenen Unterstützungsmaßnahmen, um das kurzfristige Einkommen und den Verlust von Arbeitsplätzen zu verringern und die Liquidität sicherzustellen. Nationale und regionale Erholungsmaßnahmen legen allerdings nur teilweise den Schwerpunkt auf Umweltbelange oder eine nachhaltige wirtschaftliche Entwicklung.

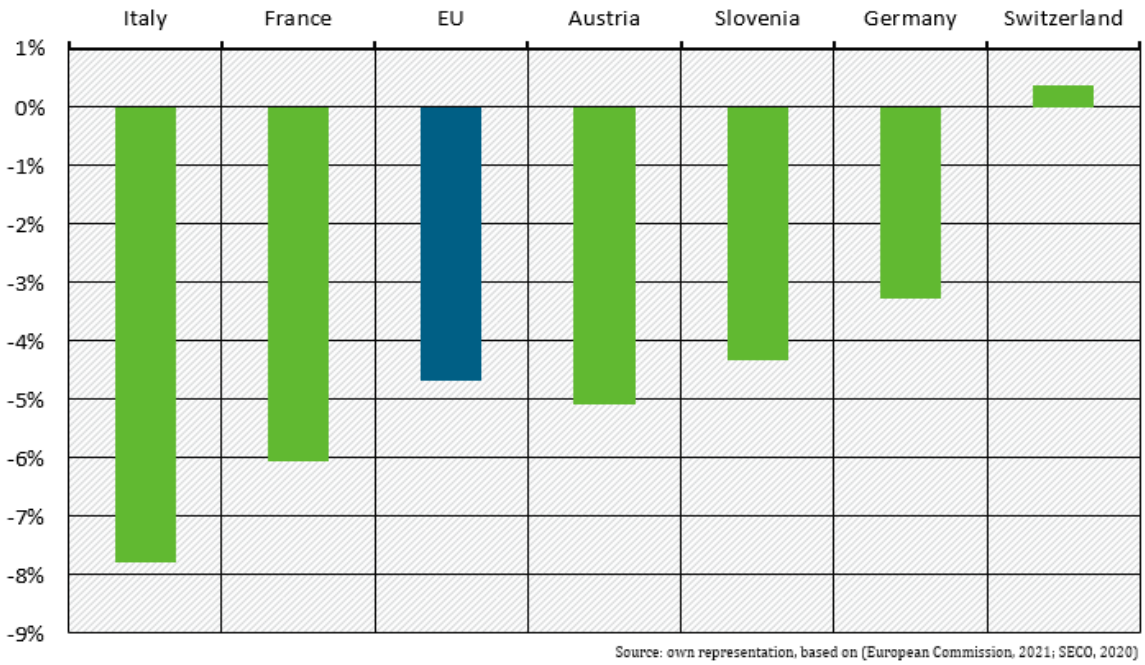
In den vier Pilotregionen Euregio Zugspitze-Wetterstein-Karwendel (DE/AT), Goms (CH), Diois (FR) und Soča-Tal (SI) sind die beobachteten Auswirkungen von COVID-19 zweiseitig: Zum einen hat der unmittelbare wirtschaftliche Druck zu kurzfristigen Reaktionen geführt, was die Bereitschaft zu nachhaltigeren Geschäftsmodellen sinken lässt. Andererseits waren strukturelle Veränderungen in verschiedenen Wirtschaftssektoren zu beobachten, die bereits vorhergehende Veränderungen verstärkten. In allen Pilotregionen besteht ein zunehmendes Bewusstsein für eine nachhaltigere Wirtschaft und Lebensweise. Dennoch gibt es bisher kein gemeinsames Verständnis darüber, wie der Erholungsprozess aussehen sollte. In allen Pilotregionen wurden vielversprechende Top-Down-Programme sowie Bottom-Up-Initiativen gestartet. Gerade lokale und regionale Initiativen haben das Potenzial für einen nachhaltigen Strukturwandel. Die oben genannte Unklarheit in Bezug auf Auswirkungen und politische Reaktionen impliziert ein hohes Maß an Unsicherheit über die Zukunftsperspektiven für eine grünere und nachhaltigere Wirtschaft in den Pilotregionen.

Die COVID-19-Pandemie stellt große Herausforderungen aufgrund der hohen Unsicherheit über die Zukunft dar. Verschiedene Szenarien erscheinen plausibel – von einer Dauerkrise bis hin zu einem grundlegenden Paradigmenwechsel zugunsten von Nachhaltigkeit. Unsichere Zeiten sind geeignet bestehende Praktiken und Prioritäten zu hinterfragen. Dies bietet der Gesellschaft die Möglichkeit, sich neu zu orientieren und neue Wege zu beschreiten. Eine auf Umweltschutz, neue Technologien und nachhaltige Innovation ausgerichtete Politik kann die nachhaltige Dimension stärken. Ökologische und soziale Belange, die auf Solidarität, Zusammenarbeit und einem kontinuierlichen Monitoring basieren, müssen zusammengebacht werden. Inwieweit die jüngsten politischen Maßnahmen die oben genannten Voraussetzungen erfüllen, ist unklar. Dennoch verstärkt die COVID-19-Pandemie die Auswirkungen und Sichtbarkeit nicht nachhaltiger Entwicklungen in wichtigen Wirtschaftssektoren. Dies könnte neue Impulse für Veränderungen auslösen.

1 Introduction

The COVID-19 pandemic has hit Europe in late winter/early spring 2020. As a response to the pandemic, policy interventions were taken to reduce the spread of the virus ('containment') and enhance the capacities of the healthcare systems ('mitigation'). Not only government restrictions but also voluntary individual changes in consumer and mobility behavior led to a sharp decline especially of nonessential activities (Goolsbee & Syverson, 2020). Because of the standstill, Europe faces the deepest recession since World War II. For 2020, the Gross Domestic Product (GDP) in the European Union has decreased by almost 5 % (European Commission, 2021). However, the impact varies between sectors and countries. Some Alpine countries like Switzerland and Germany will probably see a comparatively modest decline of about 3 % or increase of 0.4% (Fig. 1). Italy and France, on the other hand, are among those European countries hit hardest by the crisis with a 2020 decline of 8% or 6% respectively (ibid.).[3]

Figure 1: GDP decline of countries in the Alpine region in 2020[4]



Source: own representation, based on (European Commission, 2021; SECO, 2020)

Unprecedented recovery measures have been taken to support the economy. For the first time, EU member states will take joint debts to finance a one-off recovery instrument ('Next Generation EU'). So far, it is not completely clear whether the additional money will be used to return to the pre-COVID-19 status quo or to support future-oriented transition processes and shape long-term structural change towards more sustainable economies and societies. Against this background, this paper looks into the diversity of territorial impacts of the pandemic and drivers behind this diversity (section 2). Afterwards, we will present recovery measures relevant for the Alpine region (section 3) and share insights from the four pilot regions (section 4). Eventually, we provide an outlook on possible future developments and access points for action (section 5).

[3] Forecasts are adjusted regularly. For example, the European Commission July forecast for Germany in 2020 was -6.3% (see Figure 1.1), whereas in June forecasts by the Bundesbank and IWF were between -7.1 and -7.8% and September forecasts by various institutions range around -5.5% (https://www.tagesschau.de/wirtschaft/konjunkturprognose114.html).

[4] The latest reports on the economic situation in Liechtenstein from May 2020 (https://www.llv.li/files/as/konjunkturbericht-20f-internet.pdf) and October 2020 (https://www.llv.li/files/as/konjunkturbericht-20h_internet.pdf) do not include any forecast for GDP development.

2 The territorial diversity of impacts of COVID-19 and its drivers

In a Nutshell: Starting Points for Discussion

The impacts of the COVID-19 pandemic show a strong territorial diversity between and within countries. This concerns the health, the fiscal and the economic impact.

First assessments show that regions in the Alps are particularly sensitive to the shock of the pandemic. First assessments indicate that several regions within the Alpine region are among those regions in their respective countries that will be hit hardest by the economic recession.

Following the outcome of statistical analyses, three drivers explain most of the differences in the economic impact: Strictness of containment measures, economic structure and government quality.

Clear differences between regions and countries within the Alpine region exist with regard to the above drivers. Hence, the impact of COVID-19 is also expected to differ considerably within the Alpine region.

The COVID-19 pandemic and the sub-sequent health and economic crisis has various impacts. Almost all aspects of our economies, societies, and daily lives are affected comprehensively. In the following sections, we look into the diversity of economic impacts (section 2.1) and drivers behind this diversity (sections 2.2-2.4) with a particular focus on the situation at regional level in the Alpine region. Afterwards, we explore additional environmental and social impacts (section 2.5). When discussing and working on a transformation of our economies towards more sustainability and inclusiveness it is imperative to consider the environmental and social dimension.

2.1 Economic impacts and their diversity

The impact of the crisis varies not only between countries but also across regions within countries, especially when it comes to health, fiscal and economic impacts (OECD, 2020b).

First of all, the health impact shows a strong territorial dimension. Some regions had to declare higher numbers of infections and deaths than others, e.g., Lombardy in Italy or Île-de-France and Grand Est in France. Although there is no general correlation between population density and the intensity of the pandemic, often large cities were affected first. Especially, economic core locations were hit harder (Ascani, Faggian, & Montresor, 2020). They functioned as entry points and accelerated the spreading because of their embeddedness in international networks and flows.

Also, the fiscal impact varies within countries, e.g., because of higher expenditure for health and social protection, economic recovery, decline in revenues from assets, charges, fees and taxation. The OECD (2020) has identified five main structural factors that influence the specific effects on regional and local finance: (1) The degree of decentralization and local/regional responsibilities in public spending; (2) the characteristics of local/regional government revenues and how sensitive they are to economic shocks; (3) the capacity of local/regional authorities to respond flexibly to the most immediate needs; (4) the overall financial situation, including debts, cash treasury and reserves; and (5) the scope of support from higher levels of government.

Besides health and fiscal impacts, the economic impact and its variations across regions in the Alpine region is at the core of this paper. Using the macroeconomic RHOMOLO model, the Joint Research Centre calculated the economic impact of the crisis for regions at NUTS 2 level in the EU (Conte et al., 2020). The outcome of the modelling exercise shows higher impacts for eastern and southwestern Europe although it is important to underline that the potential impact of countermeasures to tackle the economic shock was excluded (Figure 2). With a particular focus on the Alpine region, regions in Slovenia and northeast Italy, especially Alto Adige and Trento, stick out as particularly affected. Most regions in the Alpine region show a decline of 6.4-12.8 %, e.g., in Austria, northwest Italy and France. Only single German regions show values below -6.4 %.

More indicators can be taken into consideration to broaden the scope beyond the decline in GDP and reflect additional elements relevant for how a region might be affected by the crisis. Different studies looked into differences between regions within single countries (Ehrentraut, Koch, & Wankmüller, 2020; The three regional assemblies of Ireland, 2020; WIFO, 2020). These studies assess the impact on regional economies based on shares of employees and commercial units working in economic sectors that are considered being particularly sensitive to the crisis. As the virus ignores national borders, it requires joint action and coordination. Hence, also territorial implications of the pandemic should be looked at from a wider perspective. If the response to the crisis will partly be given through joint action in Europe (see section 3), also the analysis and discussion of potential impacts of the pandemic as well as of the adequacy of policy responses should follow a European approach.

One of the first attempts to understand the territorially diverse implications of the pandemic on regional economic development at European scale, is based on a combination of different levels of regional exposure and sensitivity (Böhme & Besana, 2020):

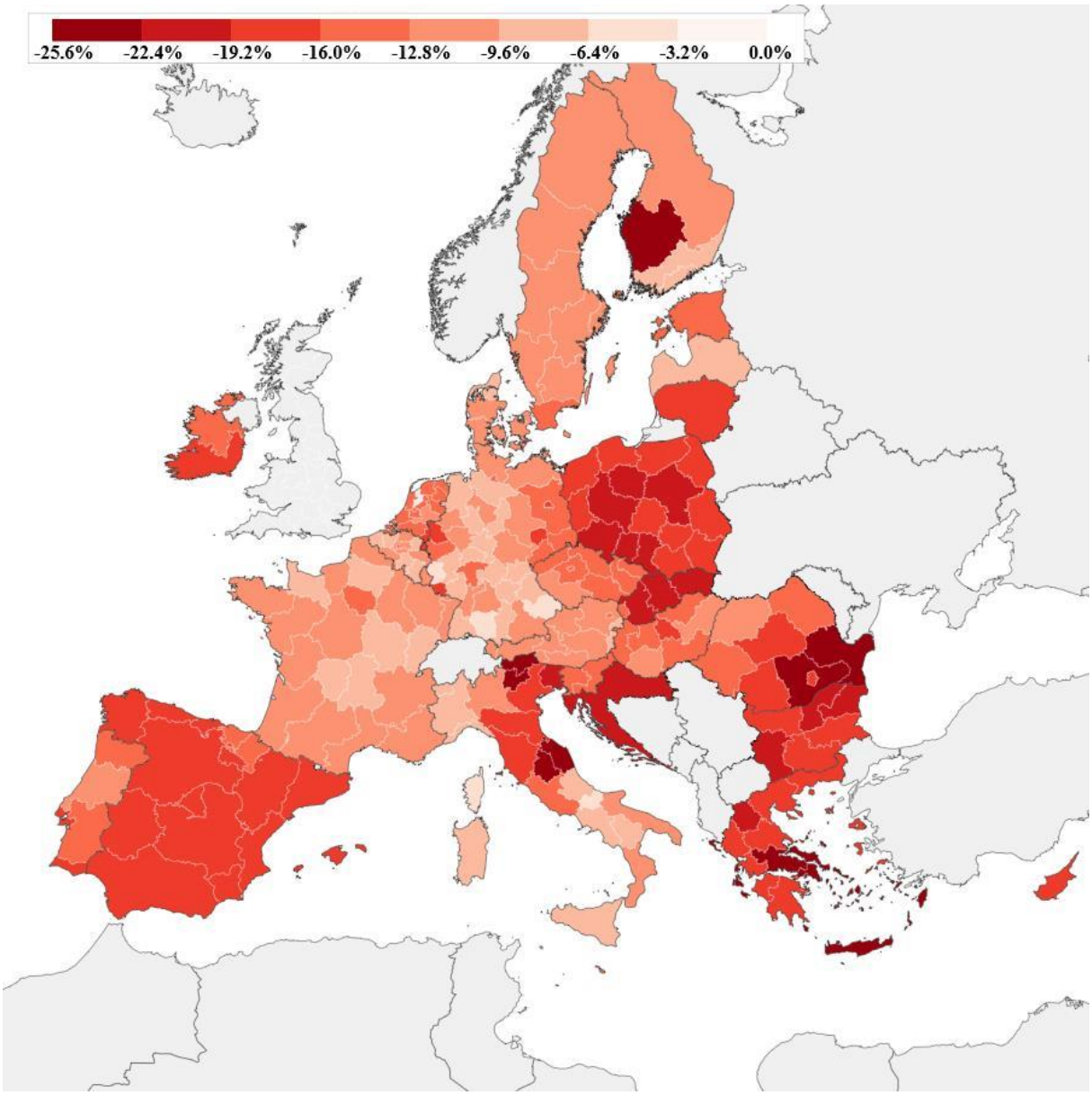
- *Exposure* is understood as a proxy for the likelihood that a certain region will be addressed (either positively or negatively). To assess the exposure, data on the rigidity of mobility restrictions, business and school closures and other containment measures was combined with GDP estimates. As data for both dimensions were available at national level, the exposure only distinguishes between, not within, countries.
- *Sensitivity* is understood as the degree to which regional development might be affected due to the region's own specificities and assets. Similar to the national analyses mentioned above, employment data by economic sectors was used. For each sector, the risk level was assessed. In addition to employment data for different economic sectors, also data on tourist accommodations was included to consider the reliance of regional economies on tourism and reflect the particular situation of tourism as one of the most affected economic sectors.

The outcome of the analysis shows that many European countries are severely exposed. Among the countries of the Alpine region (excluding Switzerland and Liechtenstein), Austria is the only county with comparatively moderate exposure and Germany the only country with medium exposure. In contrast, Italy, France and Slovenia show high levels of exposure. Furthermore, it can be seen that many regions located in the Alpine region belong to those regions being most sensitive in their respective national context (Figure 3). Hence, one can conclude from this assessment that the territorial impacts in the Alpine region will be comparatively severe.

The validity of this first Europe-wide assessment from May 2020 is in line with the abovementioned national analyses that identified, inter alia, the German states of Bavaria and

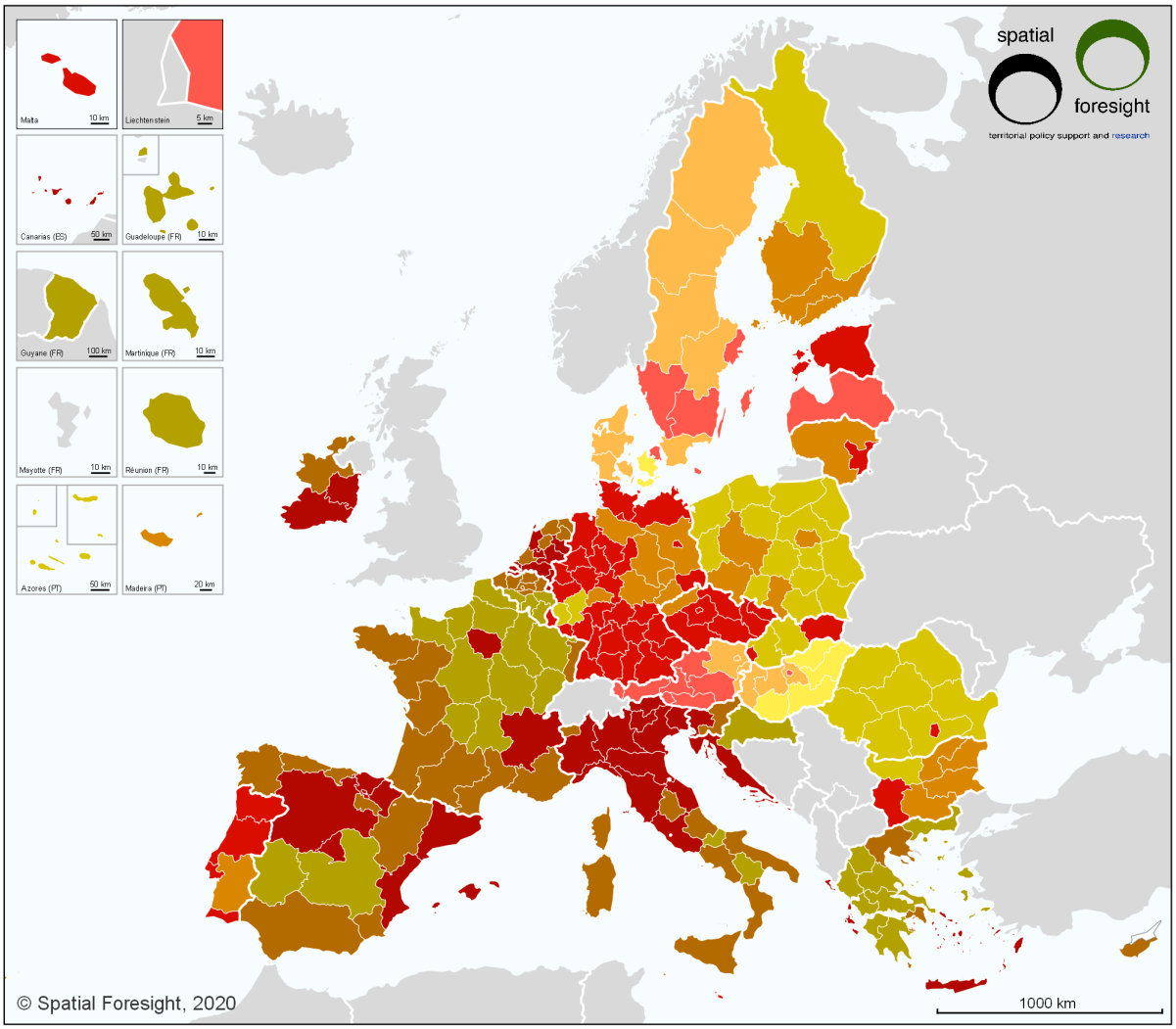
Baden-Württemberg as well as the Austrian provinces of Tyrol and Salzburg as particularly sensitive to the economic crisis (Ehrentraut et al., 2020; WIFO, 2020). A more recent analysis from September 2020 also points in the same direction. Based on an in-depth analysis of available statistical data, three main drivers and factors were identified to explain why the crisis has hit European economies differently: (1) The strictness of lockdown measures, (2) the economic structure and (3) the quality of governance (Sapir, 2020). Public indebtedness, on the other hand, has not played a major role in explaining such differences. Based on available European, national and regional data, the following sections will briefly present the three main drivers and provide further insights for the Alpine region.

Figure 2: GDP impact at NUTS 2 level (excluding the impact of policy measures)



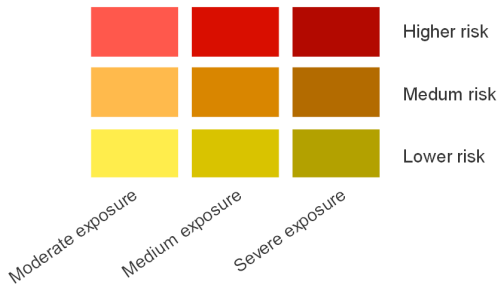
Source: Joint Research Centre, 2020 (SWD(2020) 98 final, 2020)

Figure 3: Potential territorial impacts of COVID-19 policy responses



Administrative boundaries: Eurostat GISCO, NUTS 2 (2016)
Source: own elaboration on Eurostat data

Cross-classification of exposure and sensitivity



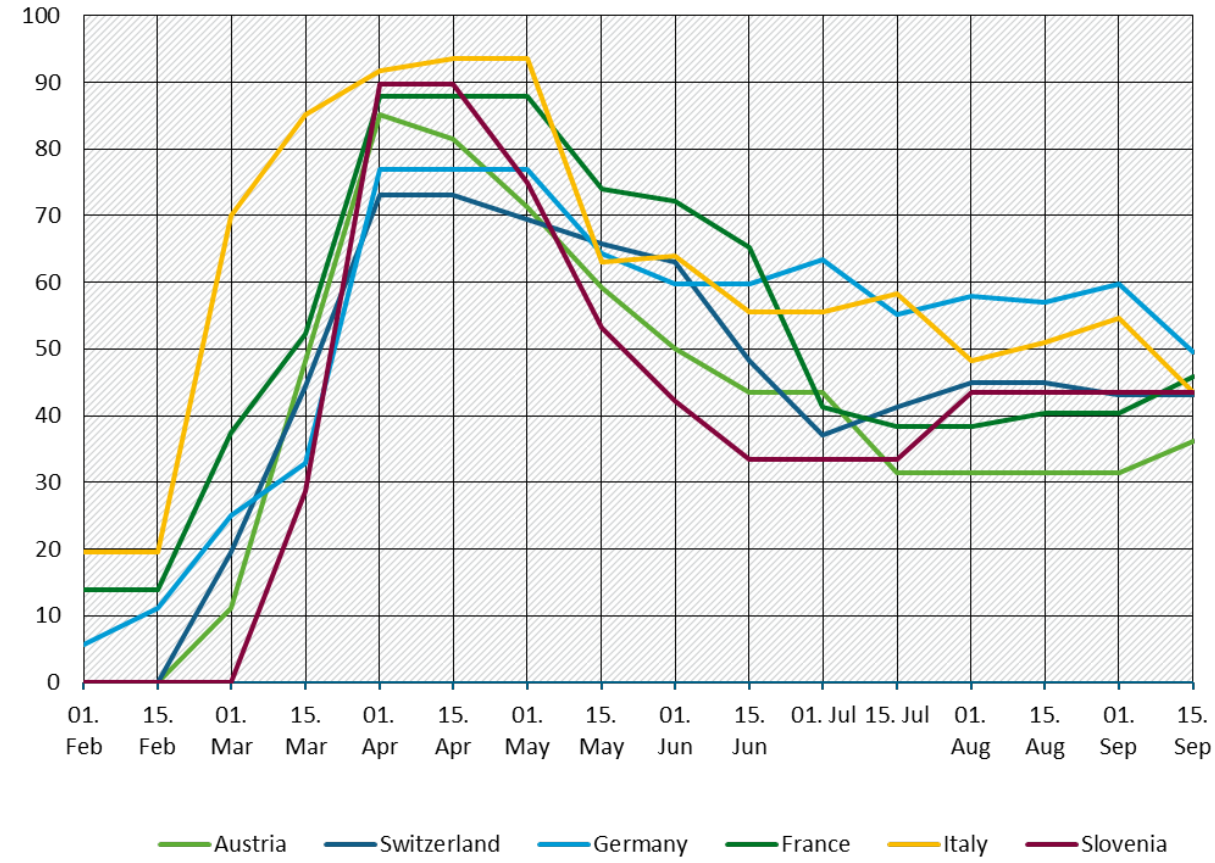
The map summarises: sensitivity and exposure of European regions to the economic crisis induced by Covid-19. The sensitivity is calculated combining a) I) employment per sector and related risk and II) comparative reliance on tourism sector. The exposure is calculated combining I) rigidity of restriction measures per country II) estimated effects on GDP for 2020.
a) Number of persons employed as a share of the total population in the age group 15-64; Statistical Classification of Economic Activities in the European Community: NACE rev 2 Assessment of impact per sector: own elaboration based on International Labour Organization (ILO) monitor: "COVID-19 and the world of work"; II) Capacity of collective tourist accommodation: bed-places from Eurostat regional tourism statistics by NUTS classification
b) I) JRC assessment of restriction measures per country used in the "Joint European Roadmap towards lifting COVID-19 containment measures" on 15th April 2020. II) European Economic Forecast published by the EU Commission (DG ECFIN) on 6th May 2020.
No data for Mayotte

Source: (Böhme & Besana, 2020)

2.2 Drivers behind the territorial diversity: Strictness of containment measures

Overall, all countries within the Alpine region follow the same pathway of reducing and increasing the strictness of lockdown measures (Figure 4). Nevertheless, some differences can be observed, both with regard to the degree of stringency and the evolution of time. While some countries put measures in place quite early, e.g., Italy and France, others responded comparatively late, e.g., Austria and Slovenia.

Figure 4: Evolution of the stringency index of lockdown measures since February 2020



*github.com/OxCGRT/covid-policy-tracker / bsg.ox.ac.uk/covidtracker

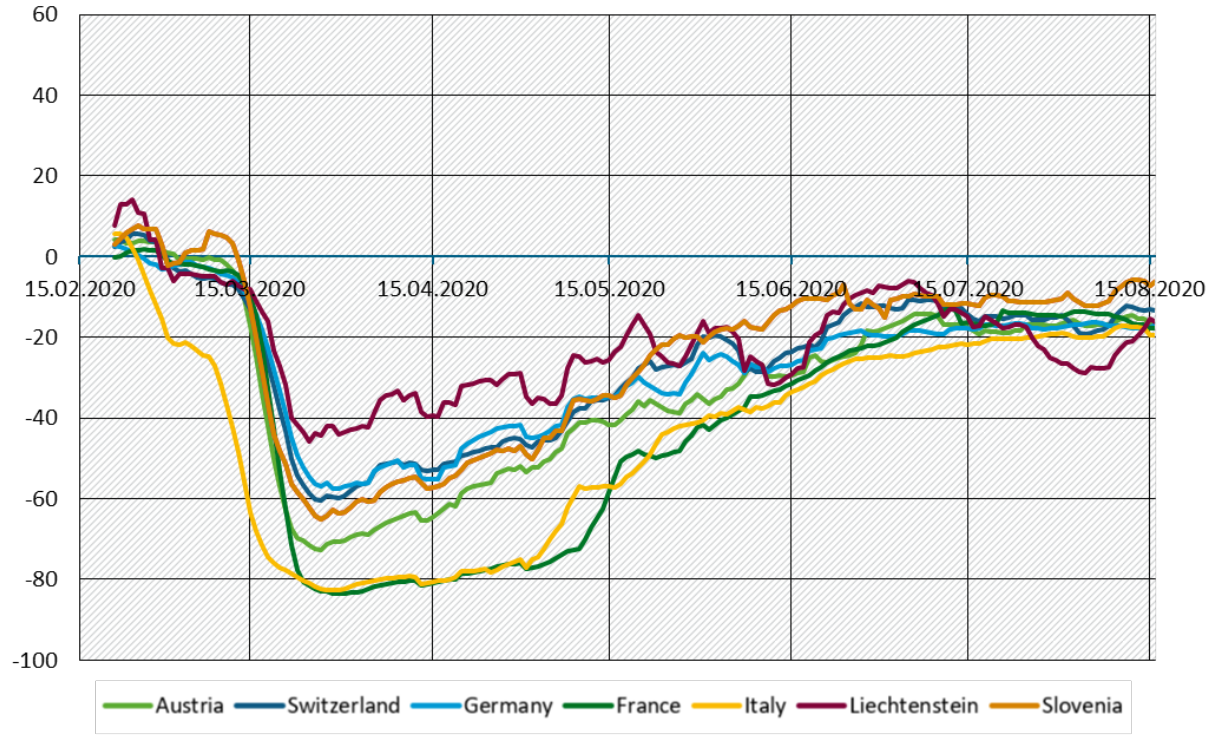
Source: own illustration, based on Oxford COVID-19 Government Response Tracker, 2020

The severity of lockdown measures taken by national, regional and local authorities to reduce the spread of the virus, has strongly influenced mobility patterns for business, shopping and leisure activities. Looking into data on mobility in transit stations, e.g., bus stops and train stations (Figure 5) and retail facilities and places for recreation purposes

(Figure 6) reveals that changes in the mobility behavior in the countries of the Alpine region mirror the development of the stringency index, i.e., a sharp decline as of the beginning of March and a trend towards the pre-COVID-19 levels as of May 2020.[5] France and Italy as the most severely affected countries show the largest decline in both figures. Another difference can be identified between both figures. While the mobility patterns for recreation activities and retail are close to the level of mid-February (minus 5-10 %), the level of mobility in transit stations is still significantly below the pre-COVID-19 level (up to minus 20 %).

If numbers of infections will increase again, new measures taken by public authorities to avoid exponential increase in infections and protect the healthcare systems will play an important role for the actual impact of the crisis and related policy responses. Furthermore, the individual and voluntary choices of citizens will also be crucial (Goolsbee & Syverson, 2020).

Figure 5: Changes in mobility behavior in transit stations between February and August 2020

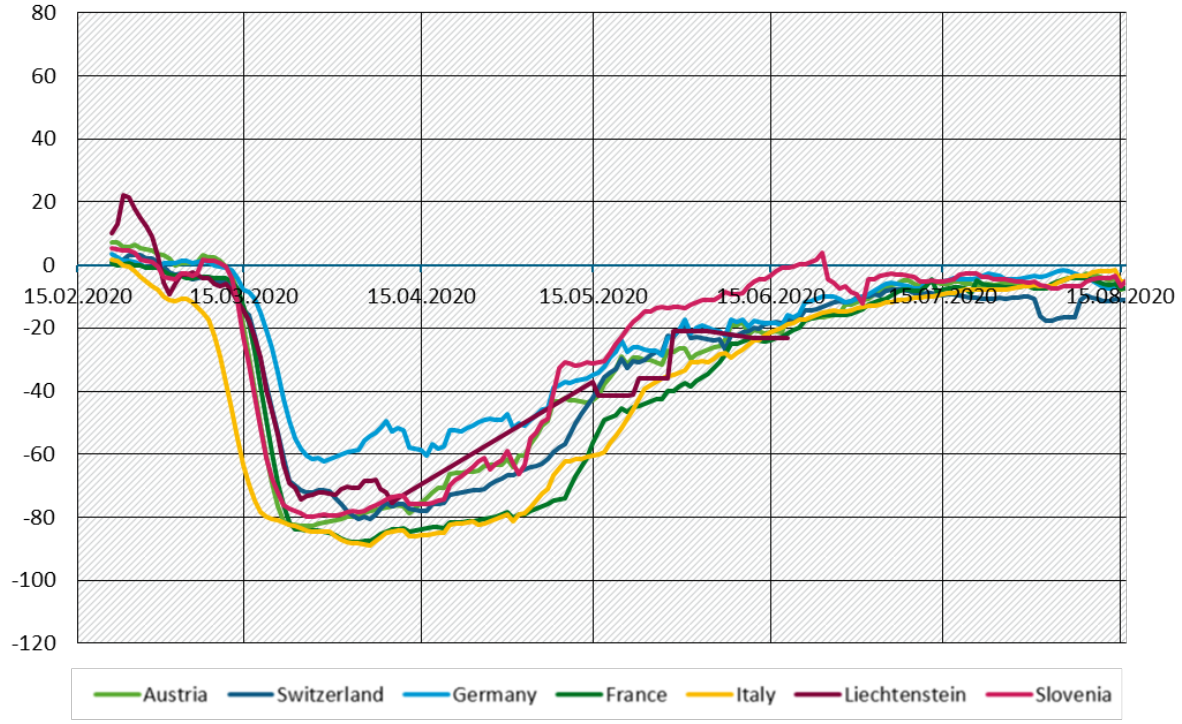


*https://www.google.com/covid19/mobility/

Source: own illustration and calculations, based on Google COVID-19 Community Mobility Reports, 2020

[5] Google recommends not to use the data for comparisons between regions. Hence, we compare entire countries and make no specific distinction between provinces, cantons and states (or even below) in the Alpine region.

Figure 6: Changes in mobility behavior in retail and recreation between February and August 2020



*https://www.google.com/covid19/mobility/

Source: own illustration and calculations, based on Google COVID-19 Community Mobility Reports, 2020

2.3 Drivers behind the territorial diversity: Economic structure

The decline in mobility and consumption behavior have affected economic activities differently. Those activities that rely on (physical) proximity and cannot take place digitally are more affected than activities that can be fully transferred into the Internet, for example. However, the full extent of the impact is not yet visible. Public schemes to protect workers and enterprises have cushioned the hit in many countries. Nevertheless, a look into sensitive sectors helps to get a better understanding of the diversity of impacts and regions that might be particularly affected over the next months and years, depending on the actual evolution of the pandemic.

Not for all countries of the Alpine region, detailed assessments on the sensitivity of regional economies exist. Different approaches are used to identify economic sectors that are expected to be particularly sensitive. They can be based on own assessments, e.g., of future catch-up effects, value chain dependencies and substitution possibilities as in the case of Austria (WIFO, 2020), or be a combination of own assessments and analyses of economic institutes[6] as in the cases of Germany (Ehrentraut et al., 2020) and Switzerland (RegioSuisse, 2020). The analyses of external economic institutes for their part are based on surveys or own assumptions, for example. The three mentioned analyses for Austria, Germany and Switzerland also identify different sectors as being particularly sensitive to the crisis. While the assessment for Germany states that the service sector might be rather resilient, the assessments for Austria and Switzerland identify only economic sectors from the service industry as particularly sensitive. This underlines the

[6] For Switzerland: https://www.avenir-suisse.ch/welche-branchen-corona-schock-wie-gross/; https://www.finews.ch/images/news/2020/04/Wirtschaft_Schweiz_de_1491944-1.pdf ; for Germany: https://www.ifo.de/node/53751; https://www.sachverstaendigenrat-wirtschaft.de/fileadmin/dateiablage/gutachten/sg2020/SG2020_Gesamtausgabe.pdf; https://der-chefoekonom.com/2020/03/27/branchenanalyse-corona-krise-wirkung-wirtschaftszweige/

current issue of high uncertainty. Moreover, it hints at differences in the economic structure and perceptions between countries. All analyses agree, however, that the economic structure generally plays an important role for the regional impact. A more detailed look into the three abovementioned analyses provides further insights.

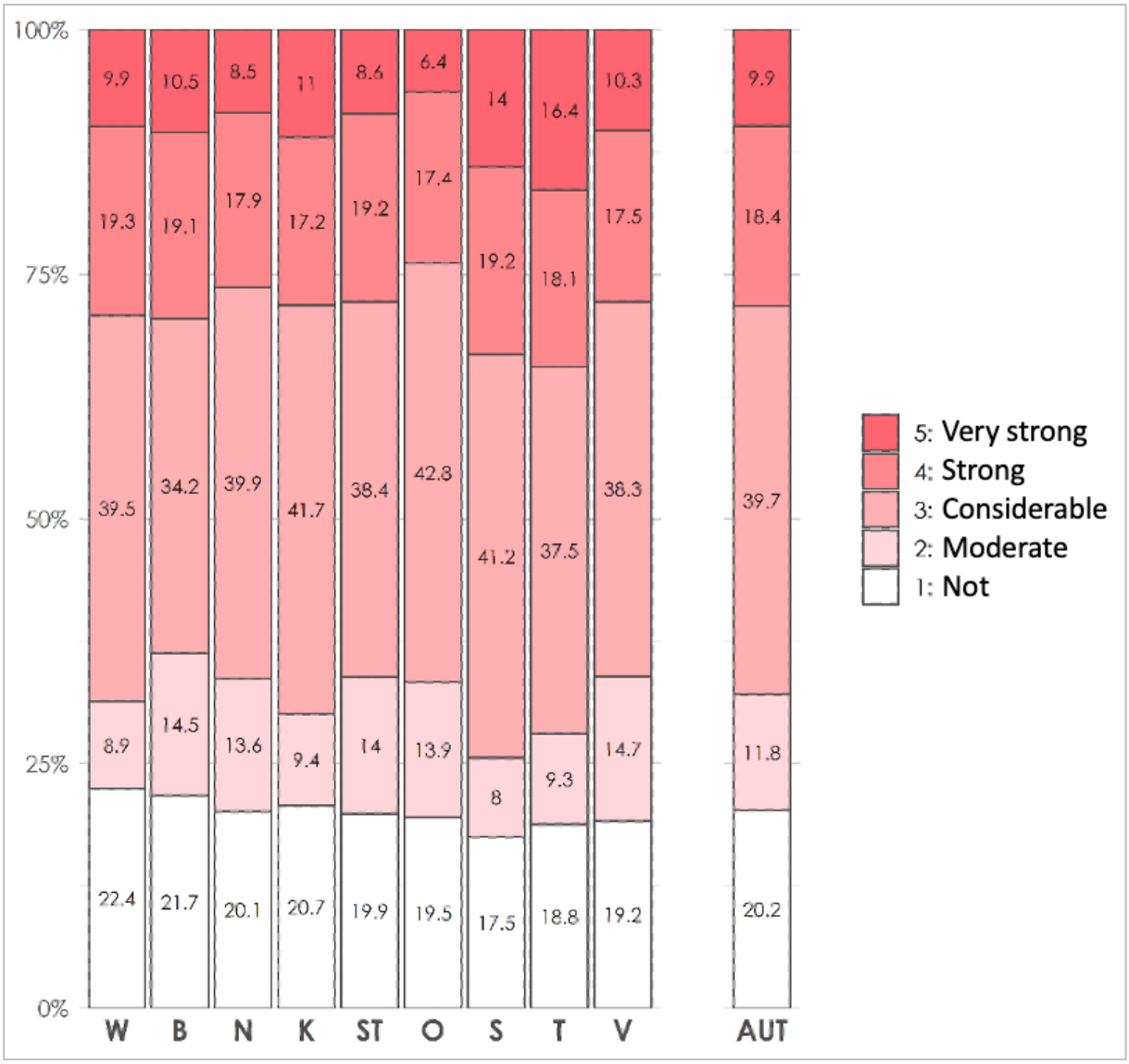
For Austria, three out of 20 sectors were identified as sectors with a very strong or strong sensitivity to the shock of the crisis. These are (1) education and teaching[7], (2) art and entertainment and (3) tourism and hospitality industry (WIFO, 2020). In total, about 730,000 people are employed in these sectors. The provinces of Salzburg and Tyrol stick out with above-average sensitivity. Here, more than one third of all employees work in the three economic sectors with high and very high sensitivity (Figure 7).

According to the analysis for Germany by Prognos from April 2020 (Ehrentraut et al., 2020), four out of 17 economic sectors are expected to be particularly sensitive to the COVID-19 crisis, related containment measures and mobility restrictions, namely (1) manufacturing of inputs (chemicals, plastics), (2) metal, steal and electrical industry (incl. engineering and automobile industry), (3) cultural and creative industries (excl. software and gaming) and (4) tourism and hospitality industry. In Germany, these four sectors account for about 7.5 million employees subject to social security contributions. In general, one can see on the map that counties with higher shares of employees working in very sensitive economic sectors are rather located in southern and some western parts of Germany (Figure 8).

The Swiss analysis (RegioSuisse, 2020) identified six economic sectors that are particularly sensitive. All of them are located in the service sector: (1) Hotel and accommodation industry, (2) travel business and agencies, (3) gastronomy and catering, (4) entertainment and recreation, (5) trade, and (6) personalized services (Müller & Ammann, 2020). An analysis of the share of employees whose workplaces had to close because of legal provisions aiming at containing the spread of the virus shows that mountain areas in the Alps were particularly affected, namely the cantons of Wallis and Graubünden (Figure 9). The two main reasons behind this concentration are the high dependency on tourism and the low level of economic diversification (RegioSuisse, 2020). This confirms the general assumption of the above assessments that tourism and hospitality industries are particularly sensitive and, on a more general level, that the economic structure plays a crucial role for the diversity in territorial impacts.

[7] Employees working in education and teaching often have public employers. Hence, they are not immediately affected by unemployment, but rather in the mid-term, e.g., due to cuts in public spending as a consequence of deep economic recession.

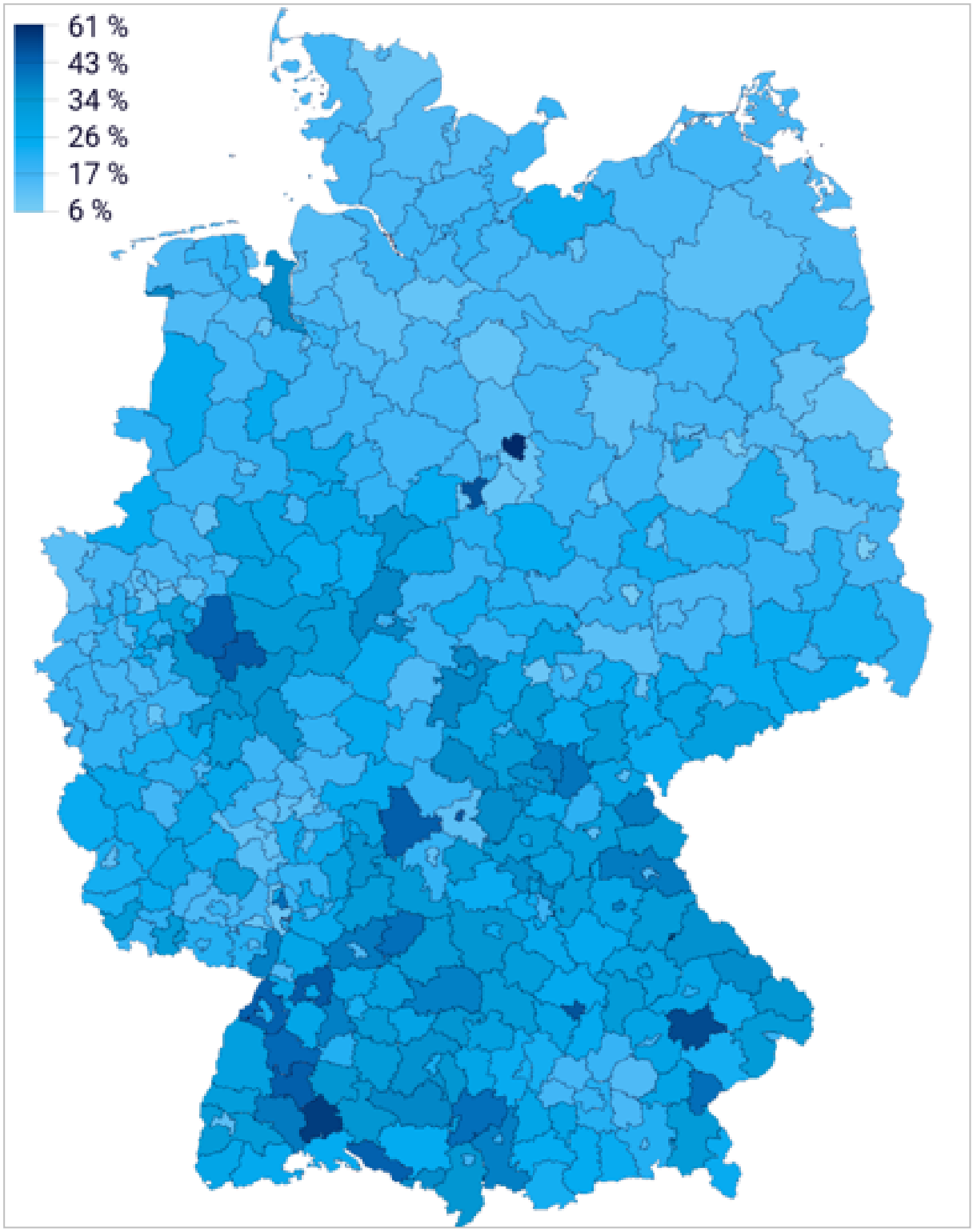
Figure 7: Share of employees in economic sectors according to their degree of sensitivity (1-5)[8]



Source: (WIFO, 2020) (legend translated into English)

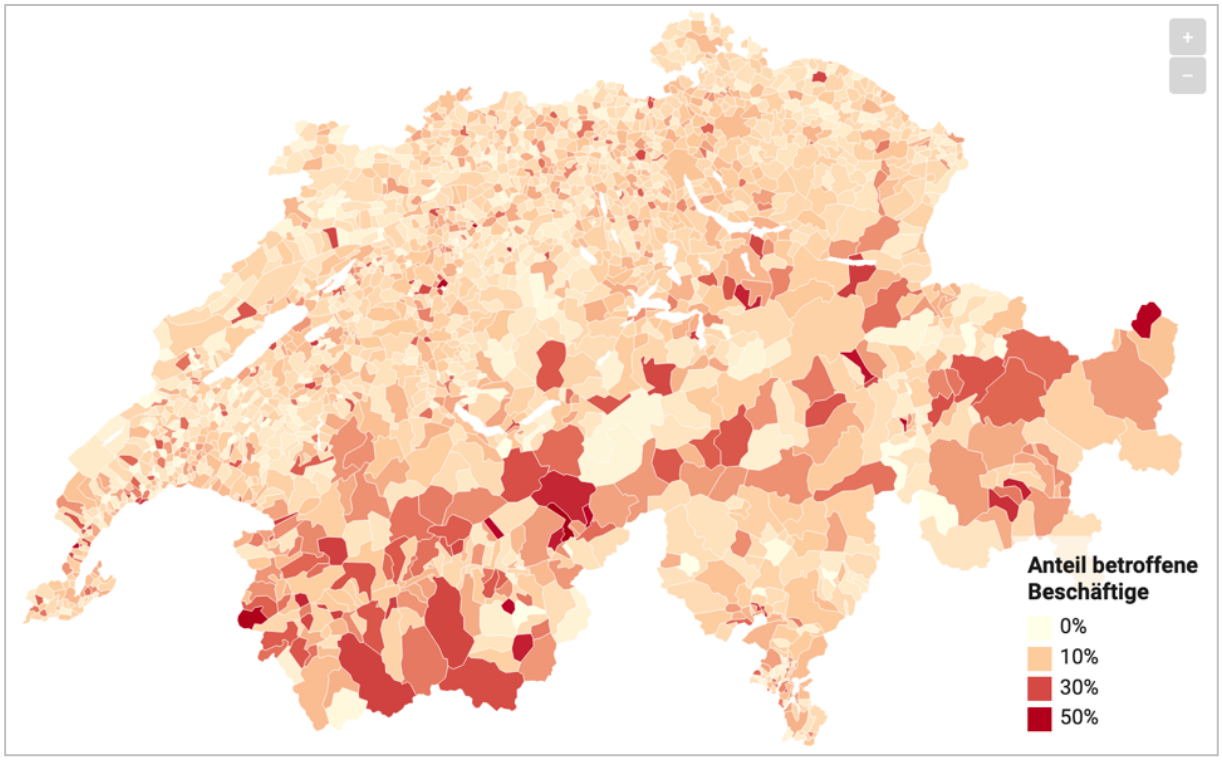
[8] W = Vienna; B = Burgenland; N = Lower Austria; K = Carinthia; ST = Styria; O = Upper Austria; S = Salzburg; T = Tyrol; V = Vorarlberg; AUT = Austria

Figure 8: Share and distribution of employees working in sectors with high sensitivity



Source: (Ehrentraut et al., 2020)

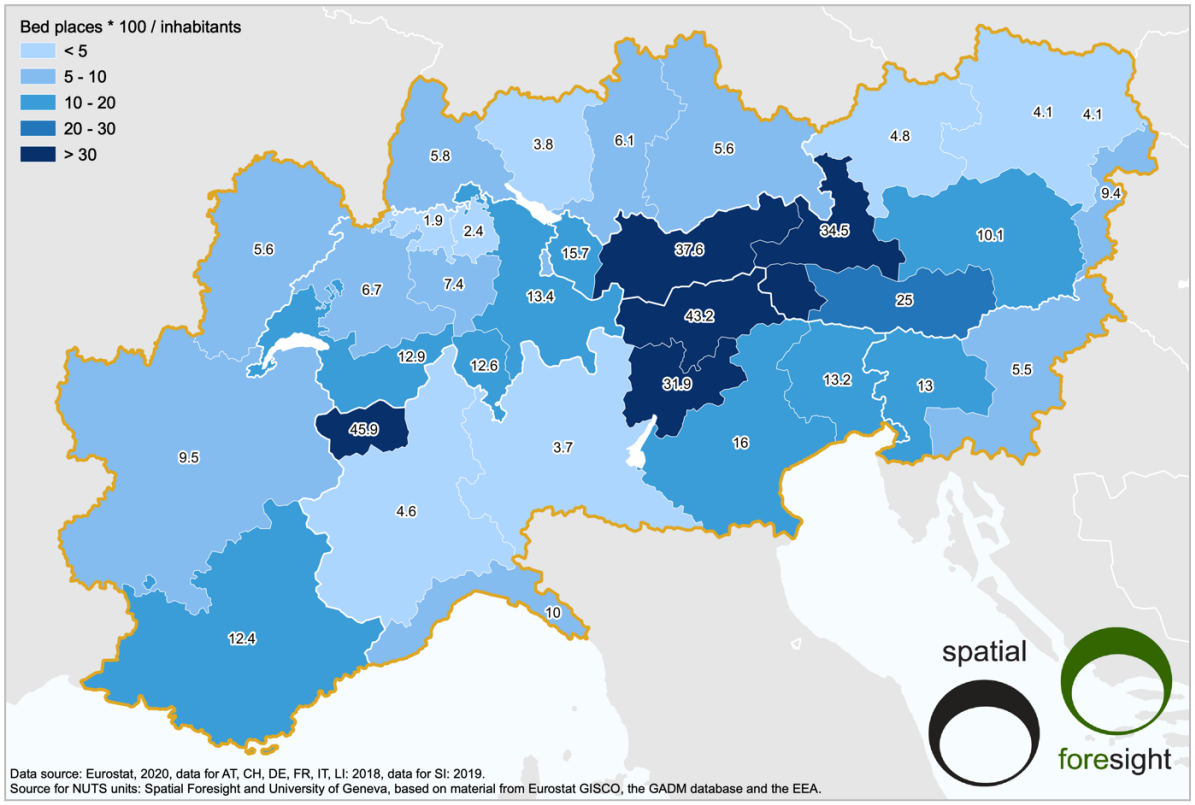
Figure 9: Share of employees in Switzerland whose workplaces had to close due to containment measures



Source: (RegioSuisse, 2020)

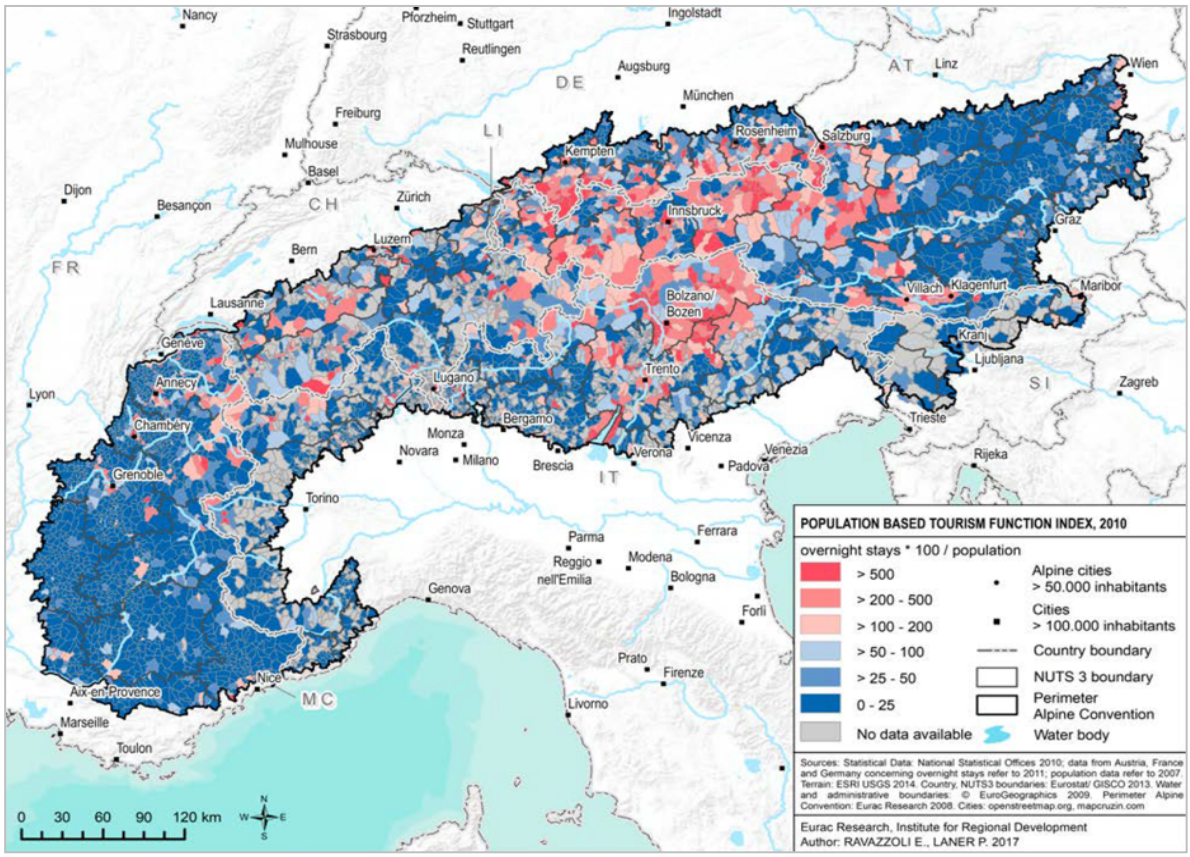
An economic sector that has been identified by all three regional analyses as being particularly sensitive to the decline in mobility and consumption behavior and that plays an important role for local and regional economies in the Alpine region is tourism. However, despite its overall importance, its actual role differs across the Alps. In South Tyrol, tourism accounts for about 18 % of the regional gross added value, for example (Zebisch et al., 2018). South Tyrol is also one of the regions in the Alps with the highest number in bed places per inhabitants in 2018/2019 (Figure 10). Other important regions are mainly located in southern and western Austria (Tyrol, Carinthia, Salzburg) and northern Italy (Bolzano, Trento, Veneto, Aosta Valley), all of which show values of 15-45 beds per 100 inhabitants. This general pattern is also confirmed by the indicator of overnight stays (in 2010) which reveals highest tourism intensity in the core area of the Alps around the provinces of Tyrol and South Tyrol. Other parts like the most southwestern regions in the French and Italian Alps as well as the most eastern regions in the Austrian Alps showed comparatively low tourism intensity.

Figure 10: Bed places per hundred inhabitants in the Alps, 2018/2019



Sources: own representation, based on data from Eurostat, 2020 (TOUR_CAP_NUTS2)

Figure 11: Tourism intensity in the Alps, 2010



Source: (Permanent Secretariat of the Alpine Convention, 2018)

2.4 Drivers behind the territorial diversity: Quality of government

Following evidence on the strong correlation between institutional capacities and economic prosperity (Acemoglu & Robinson, 2012; Rodríguez-Pose & Ketterer, 2019; Rodríguez-Pose, 2020a), higher quality of governance can be expected to contribute to better resilience of a regional economy to shocks like the COVID-19 pandemic. The importance of government quality becomes even more evident when looking into COVID-19 related death tolls: Regions that faced a decline in the quality of government over the last 20 years, also show higher death rates (Rodríguez-Pose, 2020b). Recent evidence furthermore shows that administrations in structurally weak regions often lack the capacities to invest existing funds efficiently and strategically. They fail, inter alia, in providing co-financing and overcoming administrative obstacles (Südekum, 2019).

The World Bank regularly publishes a worldwide assessment of six aggregate governance indicators on (1) voice and accountability, (2) political stability and absence of violence and terrorism, (3) government effectiveness, (4) regulatory quality, (5) the rule of law and (6) control of corruption (World Bank, 2020). Table 1 provides a detailed overview of the estimates for the countries of the Alpine region for each aggregate indicator (possible range from -2.5 to +2.5). Looking at the average values across all six aggregate indicators for 2019, Switzerland (+1.73) and Liechtenstein (+1.63) rank first among the countries in the Alpine region, followed by Germany (+1.46) and Austria (+1.45). In the Alpine region Italy shows the poorest government quality (+0.56).

Table 1: Aggregate indicators on the quality of government in the Alpine region, 2019 (rank in brackets)

	Voice and accountability	Political stability and absence of violence	Government effectiveness	Regulatory quality	Rule of law	Control of corruption	Average value
Switzerland	**+ 1.53 (1)**	+ 1.34 (2)	**+ 1.95 (1)**	+ 1.66 (2)	**+ 1.91 (1)**	**+ 1.98 (1)**	**+ 1.73 (1)**
Liechtenstein	+ 1.26 (4)	**+ 1.63 (1)**	+ 1.70 (2)	+ 1.54 (3)	+ 1.68 (3)	+ 1.97 (2)	+ 1.63 (2)
Germany	+ 1.34 (2)	+ 0.58 (5)	+ 1.59 (3)	**+ 1.72 (1)**	+ 1.62 (4)	+ 1.90 (3)	+ 1.46 (3)
Austria	+ 1.33 (3)	+ 0.98 (3)	+ 1.49 (4)	+ 1.46 (4)	+ 1.88 (2)	+ 1.55 (4)	+ 1.45 (4)
France	+ 1.14 (5)	+ 0.31 (7)	+ 1.38 (5)	+ 1.44 (5)	+ 1.41 (5)	+ 1.30 (5)	+ 1.17 (5)
Slovenia	+ 1.01 (6)	+ 0.82 (4)	+ 1.08 (6)	+ 1.01 (6)	+ 1.12 (6)	+ 0.91 (6)	+ 0.99 (6)
Italy	+ 0.97 (7)	+ 0.46 (6)	+ 0.46 (7)	+ 0.95 (7)	+ 0.28 (7)	+ 0.24 (7)	+ 0.56 (7)

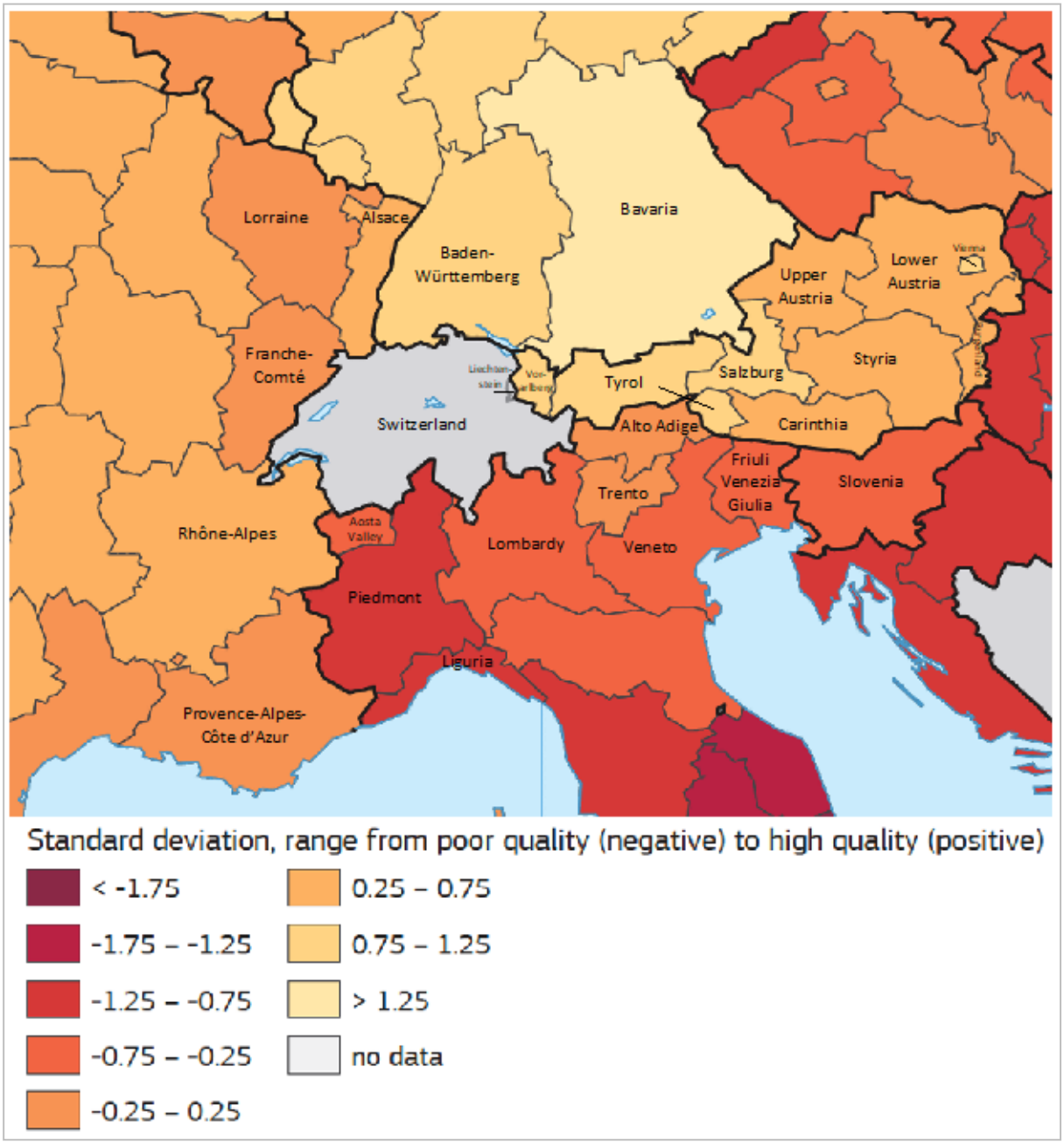
Source: own illustration based on (World Bank, 2020) (average values: own calculations)

As the World Bank's Governance Indicators are only available at national level, differences within countries and between regions do not become visible. For regions of EU member states, more in-depth analyses are available through the European Quality of Government Index which does not, however, cover Switzerland and Liechtenstein (Charron, Lapuente, & Annoni, 2019).

Looking into regional differences reveals that German and Austrian regions have the highest quality of government in the Alpine region. French regions as well as the Italian provinces of Trento and Alto Adige are still around or slightly above the European median value whereas the quality in other Italian regions and in Slovenia is clearly below (Figure 12).

Due to these considerable disparities in the government quality, investments to support the recovery process should also aim at improving institutional capacities and the quality of government. Such investments can also contribute to the recovery process and to increasing the resilience of regional economies and healthcare systems.

Figure 12: European Quality of Government index, 2017



Source: (European Commission, 2017) (extract; names added)

2.5 COVID-19 impacts on social and environmental development

The sixth report on the State of the Alps (RSA6) and the Green Economy Action Programme for the Alpine region (GEAP) frame an Alpine green economy as an economy that "considers and respects the environmental limits of the Alpine area, takes into account global challenges like climate change and limited natural resources, and supports the quality of life and well-being of its residents" (Palenberg et al., 2019, p. 11). Hence, a perspective on comprehensive transformation towards more sustainability also needs to reflect on social and environmental impacts of COVID-19 and related crises. Due to a lack of available studies on the impact in the Alpine region or in European cities and regions, however, the territorial dimension of this perspective is not as detailed as the above overview on the economic impact.

Environmental impacts

Looking into the environmental dimension of the COVID-19 pandemic is relevant from different perspectives. First of all, as about 60 % of all infectious diseases, COVID-19 is a zoonotic disease, i.e., it jumped from animals to humans. Furthermore, more than 50 % of all zoonotic diseases that have occurred since the 1940s, are associated with intense agriculture. This share is expected to further increase in the future, with enormous consequences for human health and underlining the need for more protection of natural environments (Rohr et al., 2019; Gruetzmacher et al., 2020). Hence, discussing the environmental dimension of COVID-19 needs to cover, inter alia, our food systems as a root cause behind the COVID-19 pandemic (United Nations Environment Programme, 2020). In addition, the containment measures led to a sharp decline of human activities ('anthropause'), which consequently had considerable impacts on the environment and the human footprint. The changes in behavior of wildlife that could be observed in all parts of the world, are illustrative examples of the human impact on animals. While many animals are expected to have benefitted from the lockdown, others might suffer from increasing pressure, e.g., animals that depend on food provided by humans or endangered species in remote areas that might be more exposed to poaching because of reduced human presence. Although the precise impact on wildlife cannot yet be assessed and predicted, the strong interdependency between humans and animals becomes obvious (Rutz et al., 2020).

Another important environmental impact refers to greenhouse gas emissions. Travel restrictions and reduced mobility led to sharp decline in demand for transport services and energy consumption for providing such services. This concerns both passenger and freight transport. As a consequence, the energy demand is expected to be considerably lower than in previous years. Now, EU goals related to greenhouse gas emissions and energy efficiency for 2020 might be achievable. At the same time, this illustrates the magnitude of efforts necessary to reach global and EU targets for 2030 and 2050 (European Environment Agency, 2020).

With a specific focus on air quality, concentrations of different pollutants such as nitrogen dioxide (NO_2) or particulate matter (PM 10 and PM 2.5) decreased significantly in countries with lockdown measures (Table 2). Long-term exposure to air pollutants is associated with cardiovascular and respiratory diseases and, hence, increases susceptibility to COVID-19. The evolution of air quality is therefore a relevant environmental impact to be further observed and considered for the recovery process (European Environment Agency, 2020). Another relevant aspect concerns the quality of water bodies. A well-known example is the Venice Lagoon, which experienced an increase in water transparency in March 2020 as a consequence of a combination of both natural seasonal factors and COVID-19-related travel restrictions (Braga, Scarpa, Brando, Manfè, & Zaggia, 2020).

Table 2: Effect of COVID-19 lockdown measures on air quality

	Difference between expected and measured concentration [%] in selected countries in April 2020	
	Nitrogen dioxide (NO_2)	**Particulate matter (PM 10)**
Austria	- 34	- 20
France	- 52	- 16
Germany	- 31	- 12
Italy	- 48	- 25
Slovenia	- 41	n/a
Switzerland	- 37	n/a

Source: own illustration, based on (European Environment Agency, 2020)

Social impacts

With regard to social impacts related to the COVID-19 pandemic and subsequent crises, the degree of exposure differs between different groups of society. Often it is mentioned that the coronavirus does not discriminate. However, existing inequalities influence the overall susceptibility to COVID-19. The weakest and most vulnerable societal groups are generally more exposed to the risks of the pandemic. This does not only concern elderly and other risk groups who face a higher risk of a more severe course of the disease in case of an infection. It is to be understood in a broader sense and covers various elements, which altogether are expected to exacerbate already existing inequalities:

- **Socio-economic inequality:** People with fewer financial means are more likely to live in overcrowded accommodation and have limited access to private outdoor spaces. Both higher population density and reliance on public outdoor spaces increase the number of contacts and, hence, the exposure to the pandemic. Often, poorer people cannot work from home, e.g., employees in supermarkets and retail, public transport and (health) care. In case of an infection, richer people have better access to healthcare services, because they have better overall coverage or can at least more easily afford to pay privately for additional services (Patel et al., 2020).
- **Youth:** Disadvantaged children whose parents cannot work from home and/or do not have the financial as well as other resources to compensate for the closure of schools and allow for proper home schooling (e.g., access to electronic devices and the internet), might become even more disadvantaged than before the pandemic. This concerns all stages of education, from primary to tertiary education, but especially the youngest who cannot be expected to work without assistance and supervision for a longer period. Furthermore, a healthy social environment is key for child development. Psychological stress from social isolation and physical harm from domestic violence are just two examples with significant negative impact on child development (OECD, 2020a).
- **Students:** Students suffer from limited access to education and learning loss which can be directly translated into losses in lifetime income. Furthermore, many students depend on jobs which are affected by of lockdown measures, e.g., in gastronomy, hospitality industry,

culture and leisure facilities. As a consequence, some students might have to interrupt or even cancel their studies, often probably those from families with lower socio-economic status and less financial resources (OECD, 2020a).

- **Gender inequality:** Women are more exposed to the pandemic than men for different reasons (Azcona et al., 2020). First, they tend to work in jobs with higher risks, e.g., care. Second, evidence shows that they have higher risk to lose their jobs in times of crisis. Third, containment measures that force people to stay at home are expected to increase domestic violence, from which women suffer more often than men.

3 Recovery measures to the COVID-19 pandemic in the Alpine region

In a Nutshell: Starting Points for Discussion

With regard to tourism, transport and energy, EU Cohesion Policy programmes in the Alpine region have made only limited use of the flexibility allowed for by the Coronavirus Response Investment Initiatives.

The economic responses to the COVID-19 pandemic differ significantly between countries and regions in the Alpine region. Most countries responded with immediate support measures to mitigate short-term income and job losses and ensure liquidity.

National and regional recovery measures put only partly emphasis on environmental concerns or sustainable economic development.

Various policy measures also of relevance for the Alpine region have been taken to initiate and support the recovery process. In this section, we first look into measures already in place and in the pipeline at EU level (section 3.1). Afterwards, we will provide a brief overview on different national and regional measures taken within the single countries.

3.1 EU level

At EU level, one can distinguish between measures that are already in place and those that are still in the pipeline. The following sections will focus on measures related to EU Cohesion Policy and the multi-annual framework. Under the umbrella of the Coronavirus Response Investment Initiative (CRII), the European Commission proposed two packages in March and April 2020 (COM (2020) 113; COM (2020) 138), both of which were adopted within 2-3 weeks. In addition, the European Commission proposed a one-off recovery instrument – 'Next Generation EU'. This new instrument will provide up to EUR 750 billion in loans, grants and guarantees and is currently in the negotiation process between the co-legislators.

Coronavirus Response Investment Initiatives

The first CRII package allows to provide support in the form of working capital to SMEs and for the re-allocation of up to 8 % of the allocation of an investment priority (Regulation (EU) No 2020/460). These transfers can be applied in all programmes financed by the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Cohesion Fund (CF) without further approval by the European Commission, provided they do not exceed a threshold of 4 % of the total programme budget. The main element of CRII is the flexible spending of unused 2019 pre-financing of about EUR 8 billion, which is supposed to mobilize a total support of about EUR 37 billion without additional co-financing from the EU member states. For the EU member states that belong to the Alpine region, this would imply a total additional budget of about EUR 4.4 billion. As this sum covers large countries such as France, Germany and Italy in their entirety, most of this money will however probably be spent outside the Alpine region.

Table 3: Indicative breakdown of CRII by EU member states of the Alpine region

Member State	Amounts to be released as liquidity (1) (EUR million)	Corresponding EU budget (2) (EUR million)	Total investment (3) = (1) + (2) (EUR million)	Remaining ESIF after CRII (EUR million)
Austria	13	6	19	25
France	312	338	650	1,311
Germany	328	498	826	1,906
Italy	863	1,465	2,318	8,945
Slovenia	115	471	586	0
Total	**1,631**	**2,778**	**4,399**	**12,187**

Source: European Commission, 2020[9]

The second CRII package (Regulation (EU) No 2020/558), also referred to as CRII Plus (CRII+), introduced a series of exceptional measures for programmes financed by the European Structural and Investment Funds (ESIF). All amendments aim at increasing the flexibility in using available resources. The most important changes refer to a co-financing rate of 100 % for 2020/2021, exemptions from thematic concentration, simplified administrative procedures, fewer administrative requirements and the possibility to provide working capital through financial instruments.

The consequent question is whether programme authorities in the Alpine region make use of the new flexibility introduced through CRII/CRII+, and if so, in how far they reallocate funding to meet short-term financing needs or support long-term structural change towards more sustainability. For this purpose, we selected 17 national and regional ERDF programmes (Austria: 1, Germany: 2, France: 5, Italy: 8, Slovenia: 1) and 11 Interreg programmes (1 transnational, 10 cross-border) relevant for the Alpine region and analyzed their 2016-2020[10] allocations to different intervention fields for three out of four economic sectors that are at the core of the present study: Tourism, transport and energy. The agricultural sector as the fourth economic sector was omitted because such data does not exist for the European Agricultural Fund for Rural Development (EAFRD). For transport and energy, only intervention fields with a clear focus on sustainable development were considered.

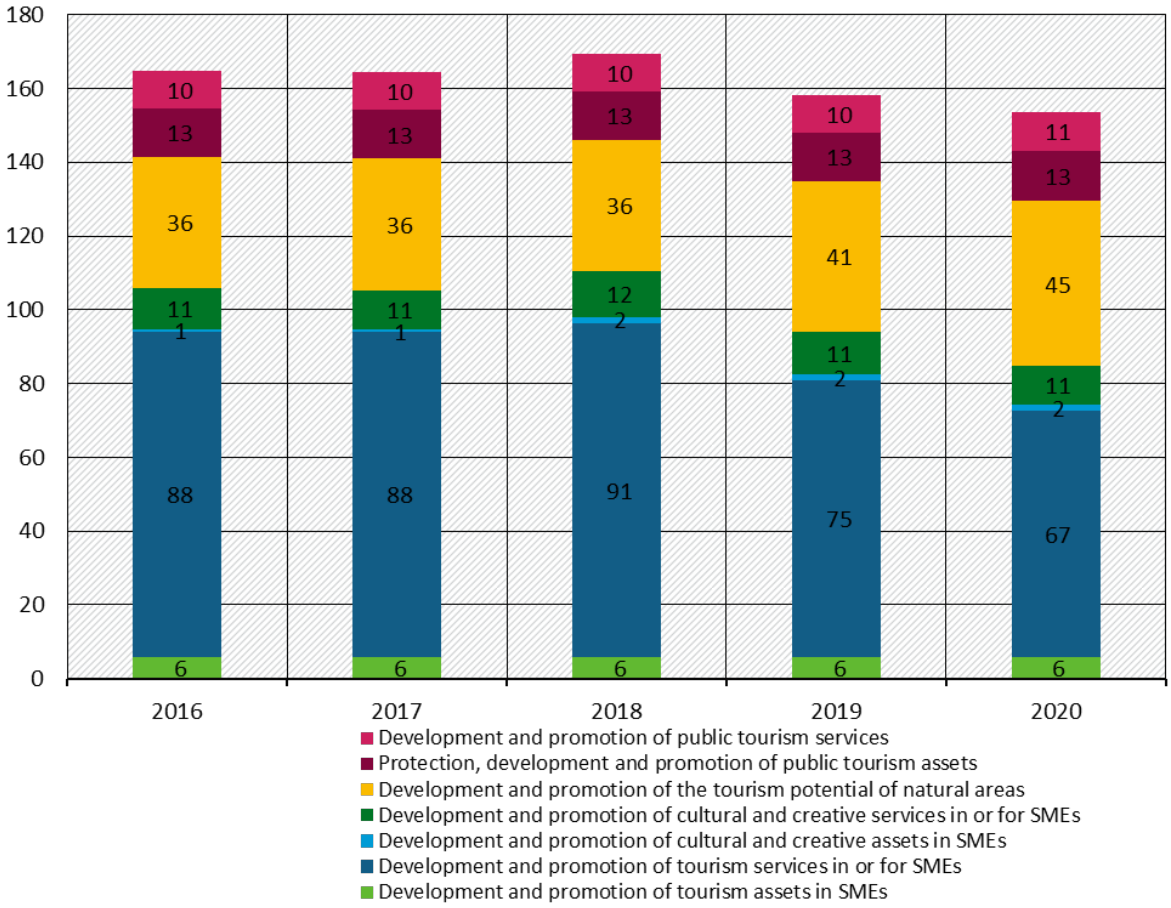
In these 28 programmes, annual allocations for the seven intervention fields related to tourism decreased from EUR 165 million to EUR 154 million, after an interim peak in 2018 with about EUR 170 million, which implies a decline in allocations of about 7 % between 2016 and 2020 (Figure 13). Changes of tourism-related allocations can mainly be traced back to a reduction of allocations for tourism services in/for SMEs (EUR -21.5 million which equals a decrease of 24 %). On the other hand, allocations to promote and develop the tourism potential of natural areas increased by EUR 9 million (+ 25 %). So, while support for enterprises in the tourism sector decreased, support for measures bringing together environmental and economic

[9] https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_458

[10] While 2016-2019 data refers to implemented allocations, 2020 data refers to planned allocations. The dataset used for these calculations, was downloaded on 24 September 2020. All changes in planned allocations for 2020 submitted by then to the European Commission, were taken into consideration.

concerns became more important. Hence, it becomes clear that ERDF funding has (so far) not been used to significantly increase the support for SMEs working in the tourism sector in the Alpine region. At the same time, the slight increase of allocations to support the tourism potential of natural areas could hint at a shift towards more nature-based and more sustainable tourism.

Figure 13: Tourism-related ERDF allocations in the Alpine region, 2016-2020 [million EUR]



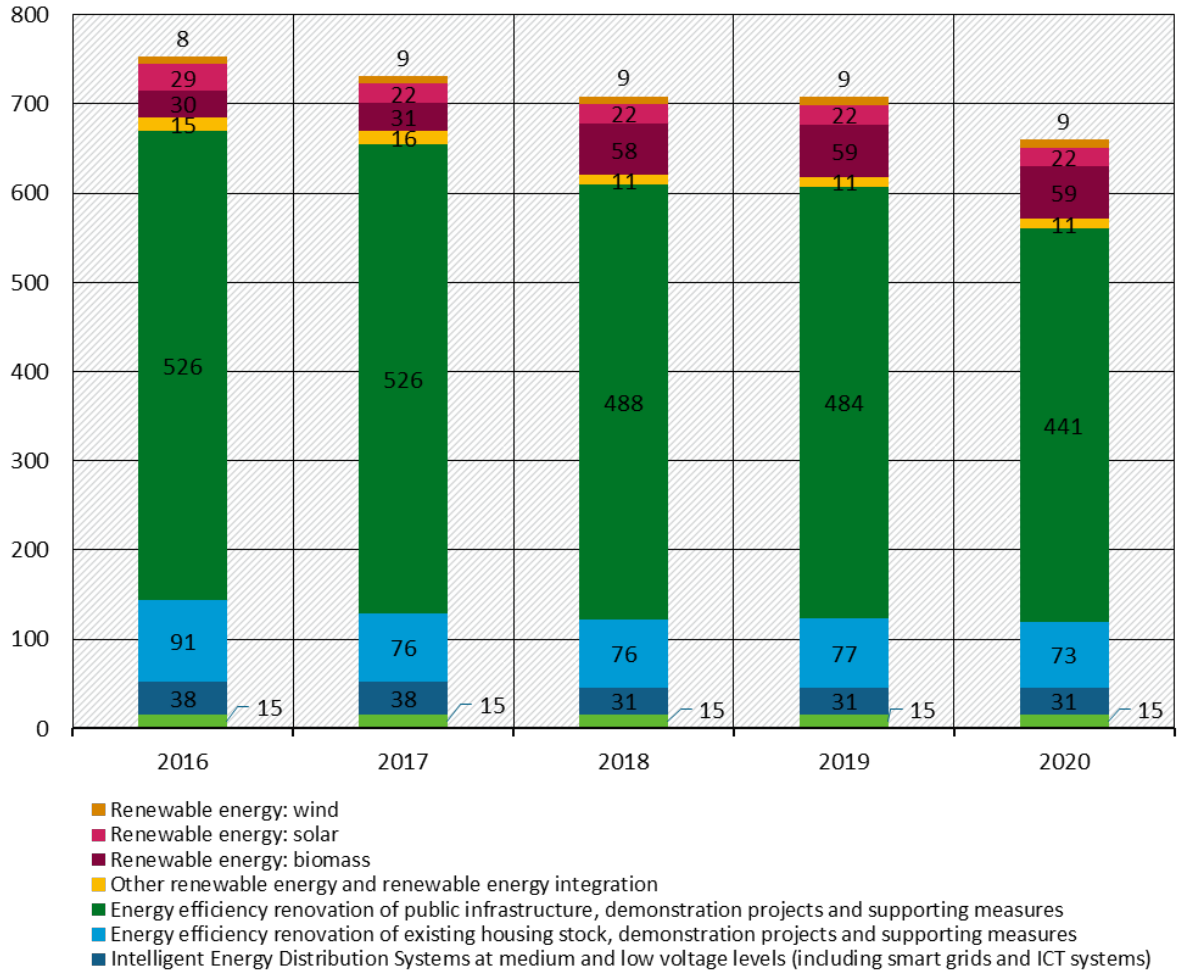
*Based on dataset 'ESIF 2014-2020 categorisation ERDF-ESF-CF planned vs implemented' (https://cohesiondata.ec.europa.eu/2014-2020-Categorisation/ESIF-2014-2020-categorisation-ERDF-ESF-CF-planned-/3kkx-ekfq) for 2016-2019; and dataset 'ESIF 2014-2020 categorisation ERDF-ESF-CF – planned', (https://cohesiondata.ec.europa.eu/2014-2020-Categorisation/ESIF-2014-2020-categorisation-ERDF-ESF-CF-planned/9fpg-67a4) for 2020.

Source: own representation, based on European Commission, 2020

With regard to ERDF allocations related to investments in sustainable energy production and energy efficiency (eight intervention fields), we see a constant decline between 2016 and 2020 with a particular decline of EUR 47 million between 2019 and 2020 (Figure 14). Energy production from biomass is the only intervention field that shows a significant increase. Allocations doubled between 2016 and 2020. However, most of ERDF funding in the Alpine region is allocated to energy efficiency measures in both public infrastructure and existing housing. The total decline 2019-2020 can be completely traced back to these energy efficiency measures. With a particular focus on the question whether the new flexibility is used to promote sustainable development, one can conclude for ERDF funding and the energy sector, that the sector is now even less important than it was some years ago. Programme authorities have (so far) not made use of the new flexibility to increase the financial support for the energy transition in the Alpine region.

ERDF allocations for four intervention fields related to sustainable transport slightly increased between 2016 and 2020, by about EUR 2.5 million (+ 1 %). While the total size of these allocations in the Alpine region increased between 2016 and 2019, they decreased after 2019 (Figure 15). Allocations for intelligent transport systems and urban transport infrastructure account for the main share, yet both decreased. Allocations for multimodal transport, on the other hand, increased by about EUR 9 million (+ 19 %). Hence, also in the transport sector, no significant shift can be observed towards increasing allocations for long-term sustainable development and structural change.

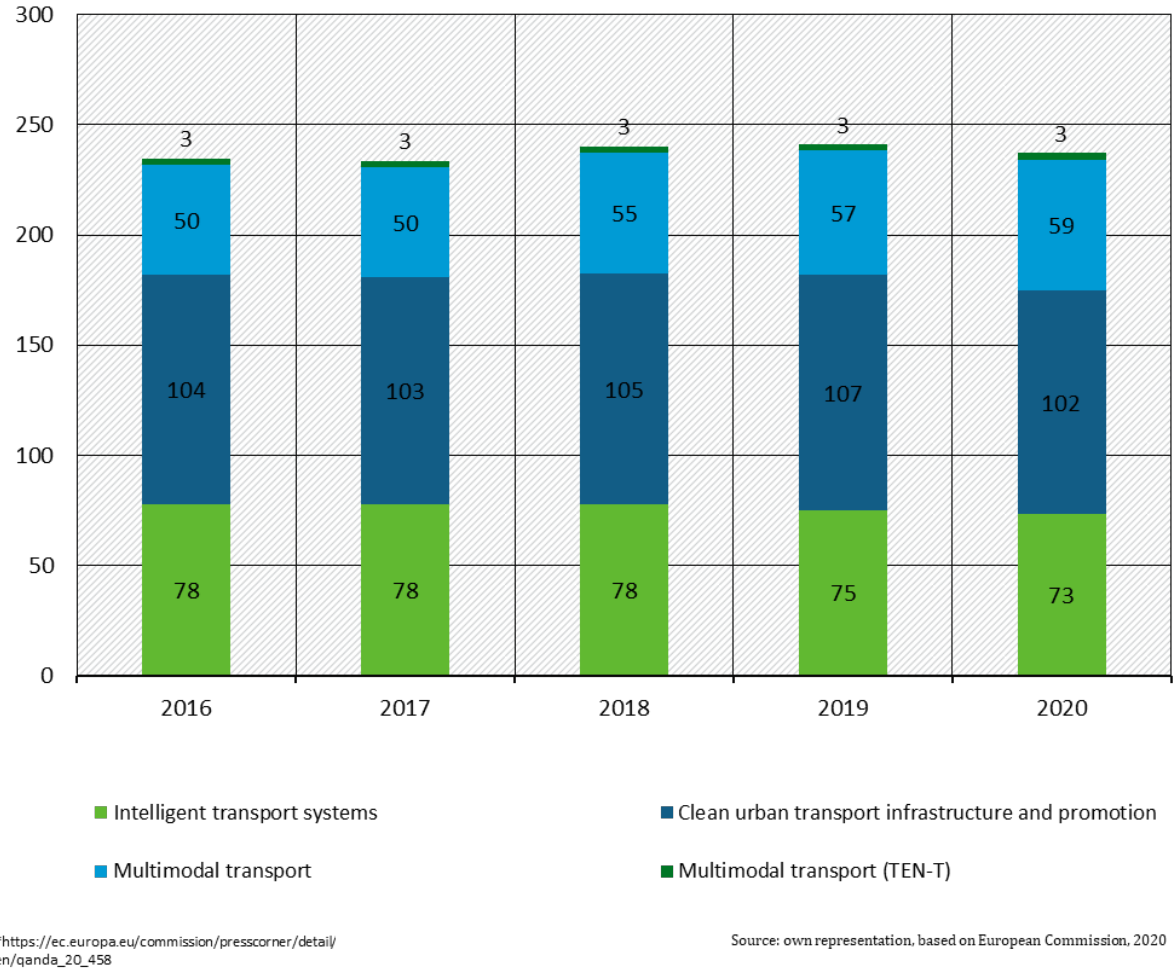
Figure 14: ERDF allocations related to sustainable energy and energy efficiency in the Alpine region, 2016-2020 [million EUR]



*https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_458

Source: own representation, based on European Commission, 2020

Figure 15: ERDF allocations related to sustainable transport in the Alpine region, 2016-2020 [million EUR]



*https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_458

Source: own representation, based on European Commission, 2020

Next Generation EU

In May 2020, the European Commission proposed an EU Recovery Instrument (COM (2020) 441) to support up to EUR 750 billion in grants, loans and guarantees. In July 2020, the Heads of State and Governments of the European Union agreed on an amended version. The Council agreed to keep the overall size of the instrument but shifted the ratio between repayable loans and non-repayable grants. Furthermore, several instruments were also deleted from the list of instruments under the 'Next Generation EU' umbrella. However, the negotiations between the co-legislators are still ongoing.

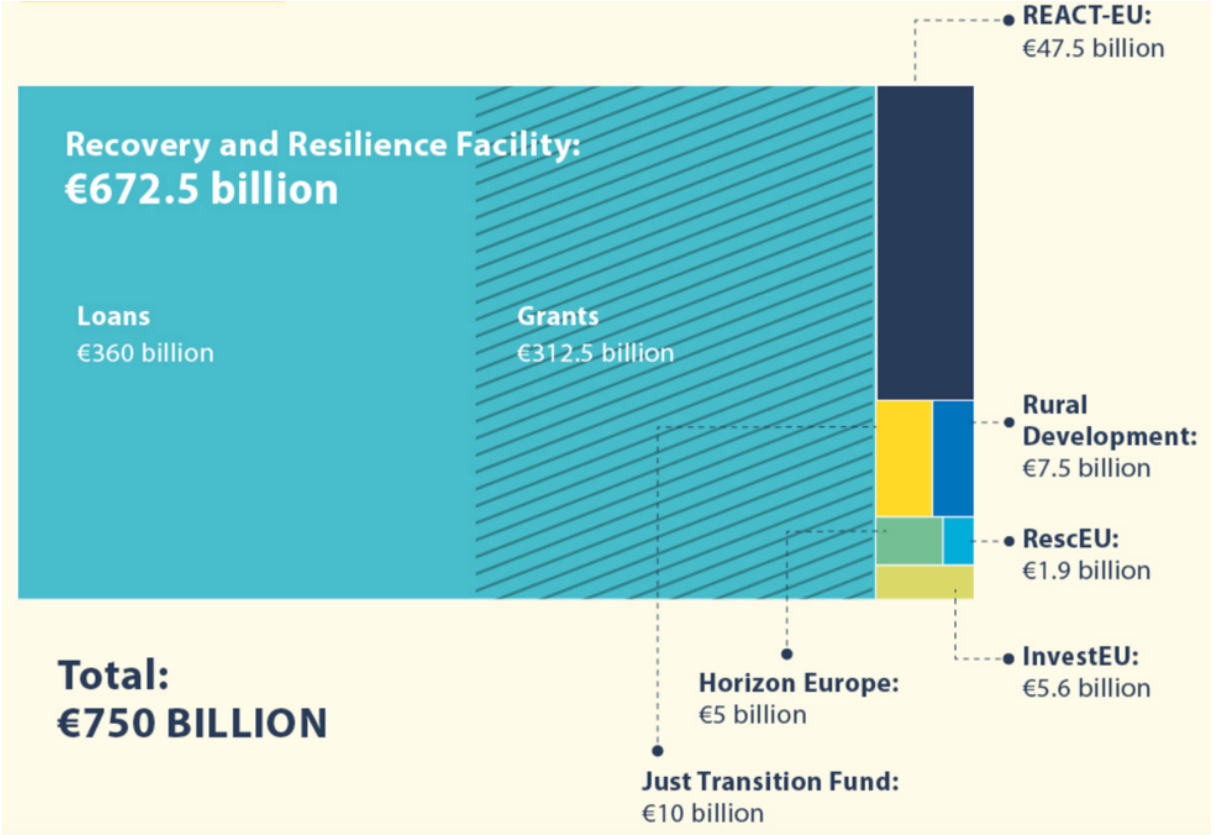
The Recovery and Resilience Facility (RRF) is the core instrument of 'Next Generation EU'. It accounts for almost 90 % of the entire budget. The overall objective of RRF is threefold: (1) Improve the resilience and adjustment capacity of EU member states, (2) mitigate the social and economic impact of the crisis and (3) support the green and digital transitions. So, RRF should indeed have a long-term strategic perspective, which with its third objective shall also foster a greener economy.

With a total budget of EUR 47.5 billion, REACT-EU is the second-largest instrument under 'Next Generation EU' (COM (2020) 451). This money shall be used to support measures related to repair from the COVID-19 pandemic by extending the 2014-2020 funding period to 2022 for commitments and 2025 for payments, respectively. However, the member states decide how to

spend the money, e.g., to boost existing programmes or set up new programmes. They can also decide to apply a co-financing rate of up to 100 %. In addition, several administrative requirements and procedures have been simplified.

Another important instrument boosted by 'Next Generation EU' is the Just Transition Fund (COM (2020) 22 and COM (2020) 460). The Just Transition Fund aims at supporting regions that are most affected by the energy transition towards a climate-neutral economy. The additional funding from 'Next Generation EU' will boost the initial envelope of EUR 7.5 billion by another EUR 10 billion. However, no region eligible under the Just Transition Fund is located in the Alpine region (Cameron, Claeys, Midões, & Tagliapietra, 2020).

Figure 16: Instruments under 'Next Generation EU' as agreed by the European Council, July 2020



Source: European Council, 2020 (extract)[11]

3.2 National and sub-national levels

Apart from the different policy approaches taken by the countries in the Alpine region for containment and mitigation, also their responses for economic recovery differ. Many countries have initiated so-called immediate actions that provide support to reduce or mitigate short-term income loss of enterprises and/or employees.[12] Typically, these measures have been initiated immediately when imposing lock-down. These measures have been implemented not only nationally but also by regions (cantons or states of federal countries).

[11] https://www.consilium.europa.eu/media/45176/2007-next-generation-eu-infographic11.jpg
[12] See e.g. https://www.produktion.de/wirtschaft/dach-laender-gleiche-probleme-unterschiedliche-loesungen-123.html

Typical examples are:

- tax deferrals for companies (e.g., AT, DE, FR, IT, SLO);
- grants and loans for companies affected by closure, lock-down, income loss (e.g., AT, DE, FR, IT, SLO);
- short-time allowance for employees (e.g., AT, CH, DE, FR, LI, SLO);
- regional deployment of measures (e.g., FR);
- reduced value added tax for particularly hard-hit sectors (e.g., AT, DE).

All these measures have purely economic objectives without differentiating according to environmental effects, which may be expected given the urgency of ensuring liquidity to firms and employees and avoiding an economic collapse beyond the forecasts mentioned above. This raises the question in how far countries in the Alpine region initiated further measures beyond ensuring liquidity to support economic recovery and possibly focusing on sectors important for greening the economy and encouraging sustainable economic development.

The degree to which countries have initiated economic recovery measures differs greatly in the Alpine region. The most considerably package has been initiated by the German federal government, while the Austrian economy recovery programme is much smaller (also in relative terms) and Switzerland has not initiated any recovery programme at all.[13] National measures have been partly complemented by regional policies, as for instance in Austria. Overall, also very few of these measures seem to put a specific focus on sustainable economic development. The following gives a short summary related to measures either tackling the sectors considered in this study or a greening of the economy more generally[14]:

- The **German economic recovery package**[15] principally aims to strengthen the economy, secure jobs, mitigate economic and social difficulties, strengthen the regions and local communities and support young people and families. The measures do not make explicit reference to sustainability and apart from particular concern about some sectors (including tourism-related activities), support is provided across sectors for turn-over losses. This recovery package, however, also contains a package on investments for innovation, digitization and climate change relevant technologies. The sub-package aims to support greening mobility, through a variety of measures addressing the use of travel modes and infrastructure development, and to enhance renewable energies and energy efficiency and hydrogen technology development. Finally, agriculture investments for better animal welfare are supported as well.
    - Precise actions encompass, for example, governmental grants from 2021 onwards that aim to lessen the additional financial burden when using electricity from renewable sources as compared to conventional ones[16], as well as a financial support for sustainable forest management practices despite lower wood prices, which were partly also caused and enforced by the crisis.

[13] https://www.produktion.de/wirtschaft/dach-laender-gleiche-probleme-unterschiedliche-loesungen-123.html
[14] This refers only to policies initiated by the COVID-19 pandemic. Thus, policies aiming at greening the economy that have been initiated in previous years are not subject to this review. They have been considered in previous papers (e.g. in this study's discussion paper "Current development and trends of the green economy" (2019).)
[15] https://www.bundesfinanzministerium.de/Content/DE/Standardartikel/Themen/Schlaglichter/Konjunkturpaket/2020-06-03-eckpunktepapier.pdf?__blob=publicationFile
[16] By decreasing the so-called EEG levy, which is based on difference between market prices for electricity and actual costs

- The German economic recovery package represents also the most important COVID-19 initiated policy in **Bavaria**. This has been complemented by the so-called BayernFonds that aims to mitigate income and turn-over losses of medium-sized companies without specifying sustainability criteria or specific sectors.[17]

- The **French Recovery Plan**[18] ('Plan de Relance') suggests a relatively strong focus on green economic development. To which extent this is also targeted towards the French territory of the Alpine region is not specified. However, the recovery plan builds, inter alia, on the principle of a regional deployment of measures, which allows for local projects addressing specific regional needs.[19] The national recovery plan package comprises three pillars:

  - The first pillar on ecology and energy transition (EUR 30 billion) supports low-carbon transportation, decarbonization of the industrial sector, energy-related R&D, energy efficiency measures and food production.

  - The second pillar on competitiveness (EUR 34 billion) includes, inter alia, sector specific support, such as an envelope for the forestry and wood sector. This is further specified and implemented through the French Investment Bank that offers funding tools for all sectors but also instruments especially designed for the wood sector.

  - The third pillar on territorial cohesion (EUR 36 billion) involves investment support for local and regional authorities. Relevant topics are the digital transformation, youth employment, short-time working, health, culture and education.

- The **Austrian economic recovery package**[20] combines the immediate measures taken in Spring 2020 with further measures. It also contains various measures mitigating income and turn-over losses of enterprises and the employees. The package brings together additional state expenditures and reductions on state income. Most measures are neither subject to specific sectors nor sustainable economic development. However, a few specific initiatives (apart from the sector specific value added tax reduction mentioned above) have been taken or are anticipated:

  - Establishing a forest fund that shall, inter alia, support research for wooden gas and bio-fuels as well as finance measures to enhance biodiversity and climate change resilience of forests;

  - a COVID-19 investment bonus which supports reinvestments of fixed assets of enterprises. Climate detrimental investments are excluded and the grant is doubled (14 % instead of 7 % grant of eligible costs) if the investment is linked with digitalization, ecological support, health or life science;

  - upgrading of the existing environmental support law that finances, inter alia, investments in energy efficiency and heating systems;

  - investments in environment and mobility, e.g., by changing travel preferences through increasing air travel levy;

[17] See https://www.stmwi.bayern.de/bayernfonds/
[18] See https://www.gouvernement.fr/france-relance
[19] See https://www.economie.gouv.fr/plan-de-relance
[20] See https://www.parlament.gv.at/PAKT/BUDG/GESETZESVORLAGEN/KONJUNKTURPAKET/index.shtml

- and tax and social security reliefs as well as administrative simplifications for agriculture.

  Indeed, the above-mentioned support for agriculture and forestry has been combined in a sector-specific investment package.[21] The relevance of tourism for Austria is furthermore visible in the package supporting tourism.[22] This package builds on measures generally introduced at federal level in support of businesses but also contains some tourism specific measures that shall mitigate the extreme vulnerability of the sector to the pandemic and lock-down.

- The examples of **Tyrol and Vorarlberg** show how some Austrian states have initiated further measures due to COVID-19 and how they differentiate between sectors and/or consider sustainability:

  - The state of Tyrol has set up its own recovery package 2020[23] based on the three principles 'digital – regional – sustainable'. This package provides additional funding to state policy measures. The sub-package 'regional' includes, inter alia, support to the state strategy on regional supply chains and agricultural hydrology. The sub-package 'sustainable' supports a variety of measures for all sectors and includes, among others a project for a pilot region 'sustainable tourism'.

  - The state of Vorarlberg complemented the federal recovery package with additional state funding. Most measures are closely linked to federal measures. One of the additional measures is the tourism special support of Vorarlberg, which offered catering and accommodation firms a one-off grant.[24]

- In **Switzerland** various immediate measures have been taken to support the tourism sector in particular. These include financial support for liquidity and additional funding for Swiss Tourism (Schweiz Tourismus – ST). This latter additional funding shall be used for enhancing sustainable tourism with a focus on domestic tourism.[25]

- Local initiatives, for example in the **canton Wallis**, offer additional insights for ways to strengthen local and regional businesses. Some municipalities have issued vouchers in Spring 2020 to their inhabitants that could be spent for shopping in local businesses. These measures had a twofold objective. They firstly aimed to overcome impacts of lock-down measures for local enterprises and were secondly meant to strengthen local and regional value chains.[26] An initiative even more explicitly targeted at strengthening regional businesses and value chains is the campaign 'ZÄMU FER IISCHI REGION – JEZZ HIÄ CHÖUFFU'[27] of the business association Brig, Naters, Visp.[28] Related to tourists, the Wallis also offers vouchers that tourists can obtain in 2020 and spend for local products and

[21] See https://www.bmlrt.gv.at/land/informationen-zum-coronavirus-uebersicht/350-millionen-investitionspaket-fuer-land-und-forst.html
[22] See https://www.bmlrt.gv.at/tourismus/corona-tourismus/corona-ma%C3%9Fnahmenpaket.html
[23] See https://www.tirol.gv.at/fileadmin/presse/bilder/Platter/PK_03.06.2020/Fact_Sheet_Konjunkturoffensive_2020_1_.pdf?ems_dl=755986299_Ibj258JUTM_6085_1861150_1_2000000
[24] See https://vorarlberg.at/web/land-vorarlberg/contentdetailseite/-/asset_publisher/qA6AJ38txu0k/content/coronavirus-wirtschaft-arbeit?article_id=582218
[25] See https://www.seco.admin.ch/seco/de/home/Standortfoerderung/Tourismuspolitik/coronavirus.html
[26] See e.g. the vouchers of the municipalities Bitsch (https://www.bitsch.ch/aktuelles/news/2020/5/gutschein-50--818) and Vahren (https://www.1815.ch/news/wallis/aktuell/soforthilfe-fuer-die-varner-gewerbebetriebe/).
[27] This can be translated as "Together for our region – Now we go shopping here".
[28] See https://www.zaemu.ch/#intro

services.[29] While the latter also supports the local economy, it may be argued that this is primarily a marketing initiative to attract tourists to the Wallis.

- The **Slovenian economic recovery package**[30] ('Zakon o interventnih ukrepih za omilitev in odpravo posledic epidemije COVID-19', Law on intervention measures to mitigate and remedy the consequences of the COVID-19 epidemic) aims to counteract the economic effects of the COVID-19 crisis with tax deferrals, various support payments and tax reductions, e.g. vouchers for Slovenian citizens to be spent for tourism accommodation by the end of 2020, support for skiing areas and operators of cableways, compensation and reduced social contributions for undertakings in the agriculture and fishery sector, and simplified procedures for greenhouses with a low carbon footprint.
- The **Italian economic recovery package**[31] ('Decreto Rilancio', Relaunch Decree) aims to counteract the economic effects of the COVID-19 crisis with tax deferrals, support payments and various incentives for sustainable restructuring and eco-friendly mobility. Relevant measures comprise tax reliefs for energy efficiency measures in buildings, discounts of up to EUR 500 for Italian families, couples and singles if they spend their 2020 vacation in Italy, an emergency fund for companies of the agricultural, fishery and aquaculture sectors, and support mobility vouchers for adults who live in an urban area and want to purchase a bike, an e-bike, a Segway or a monowheel, for example.
- The national government of Italy furthermore committed to a particular policy for the **recovery process in Italian mountain regions**. For this package, the National Union of Mountain Communities (UNCEM) emphasizes the need for measures, resources and regulations to support the implementation process, based on the principles of a green economy, innovation, sustainability and smart economy.[32]

[29] See https://www.valais.ch/de/info/landingpage/100-franken-gutschein
[30] http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO8206; https://www.gov.si/teme/koronavirus-sars-cov-2/odpravljanje-posledic-epidemije/; https://www.gov.si/teme/koronavirus-sars-cov-2/odpravljanje-posledic-epidemije/drugi-paket-ukrepov-za-omilitev-posledic-epidemije/; https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2020-01-1195?sop=2020-01-1195
[31] www.governo.it/sites/new.governo.it/files/DL_20200520.pdf; https://www.corriere.it/argomento/decreto-rilancio; https://www.corriere.it/economia/aziende/cards/dl-rilancio-bonus-partite-iva-ecobonus-110-voucher-baby-sitter-vacanze-stop-irap-ecco-tutte-nuove-misure/bonus-bici-monopattini-500-euro.shtml; https://www.corriere.it/economia/aziende/cards/dl-rilancio-bonus-partite-iva-ecobonus-110-voucher-baby-sitter-vacanze-stop-irap-ecco-tutte-nuove-misure/bonus-vacanze-cancellazione-imu-gli-alberghi.shtml; https://www.beniculturali.it/comunicato/manovra-franceschini-crescono-le-risorse-per-turismo-e-cultura
[32] https://uncem.it/stati-generali-della-montagna-gli-impegni-di-governo-e-parlamento-ora-concretezza-e-tempi-certi-uncem-in-azione-per-supporto-operativo-ai-comuni-e-agli-enti-territoriali-montani/

4 Tentative insights from the pilot regions

In a Nutshell: Starting Points for Discussion

The observed impact of COVID-19 in the four pilot regions is twofold: On the one hand the immediate economic pressure has led to short-term responses and to a decrease in the willingness to go for more sustainable business models. On the other hand, also structural changes in different economic sectors could be observed, many of which had been ongoing already before the crisis.

In all pilot regions, the awareness for a more sustainable economy and way of life is high and increased in 2020. Nevertheless, no common understanding exists so far on how the recovery process should look like.

Promising top-down programmes as well as bottom-up initiatives started in all four pilot regions. Especially local and regional initiatives have the potential for long-lasting structural change and real transformation.

The above ambiguity in impacts and policy responses implies a high degree of uncertainty about future perspectives for a greener and more sustainable economy in the four pilot regions.

In this chapter, a brief overview on the economic situation in the four pilot regions is given and some conclusions and recommendations are formulated on how to consider the outcomes of this paper for further progress on achieving a green economy in these regions. As a general statement to start with, we can say that the four pilot regions show a clear trend towards more awareness for topics and issues around sustainability and green economic development as a consequence of the COVID-19 crisis.

We have learned from the various interviews with representatives from the four pilot regions that the COVID-19 crisis led to an increase in local awareness for various vulnerabilities: The vulnerability of individuals, enterprises, families and local societies, the structural patterns in the different economic sectors and interdependencies between places, as well as the vulnerability of nature. People question the status quo and the traditional way of 'doing things'. They become more open to new approaches – because they have to. This opens up a wide field for future reflections on what is important in our lives and how we want to live. This may become an opportunity for a shift towards greener economies and more sustainable lifestyles, but it cannot be taken for granted.

4.1 Goms region in Switzerland

The pilot region Goms is both negatively and positively affected by COVID-19. Tourism, which is the main economic sector in Goms, has profited from COVID-19, because there was a higher demand for nature-based tourism in the mountains, away from the metropolitan areas and cities. It has been a gain for Goms that has been positioning itself as slow tourism destination for years now. Other economic sectors were not as significantly affected. Especially short-time allowances ('Kurzarbeitsentschädigung') contributed to mitigating the general economic decline.

Sensitivity and expected impacts

The Swiss pilot region Goms has been facing a higher tourism demand in the summer season than in the last years. This was mainly due to the strong nature-based tourism orientation of the

region as well as to the lack of touristic hotspots. The energy sector is less affected by the pandemic. In the lockdown period, energy consultancy activities had to be reduced.

Policy responses with a focus on the key sectors of green economy

In the tourism and also in the handicraft sectors associations at the local and the canton levels are supporting local consumption by offering vouchers (CHF 100) that can be used for buying at local enterprises.[33] This may partially imply support for a green economy, above all it is a measure supporting regional products and, in this sense, strengthens regional business cycles.

Impact on sustainability

Local stakeholders say that in the Goms region there is a higher sensitivity for sustainability topics due to the COVID-19 crisis, because people have become more aware of the vulnerability of our societies. There is a general mood of wanting to create a better, healthier world after the pandemic. The pandemic has shown the dependency of the Goms region from the outside world and foreign countries, and raised awareness for the support of local businesses, not only for the sake of economic sustainability of the Goms region, but also because of social and ecological sustainability as well as increasing self-sufficiency.

4.2 Région Diois in France

The Diois pilot region is negatively affected by the COVID-19 pandemic mainly in the tourism and in the agricultural sector. The French national recovery plan as well as regional bottom-up activities to strengthen the food chain aim at reducing the negative impacts. According to the talks with local key actors, the crisis has influenced the mindset of locals and raised more attention for sustainability and green economy topics in the Diois region.

Sensitivity and expected impacts

The sectors most affected by the COVID-19 pandemic in the Diois region are tourism and agriculture. During the lockdown period in spring 2020, there was a significant decline in tourism during the Easter holidays, which led to a decrease in job offers in this sector. Interestingly there were new visitor groups, who might not have come to visit the region under normal circumstances.

2020 was a very difficult year for holiday centers and collective accommodations which, in contrast to other structures, did not fill up in summer and have continued to suffer from the crisis. In contrast to that, second homes were highly frequented and even extended their summer season. Some of them have even reopened after several years of closure. The COVID-19 pandemic has shown that the Diois territory could be attractive also for a French clientele, and that it offers assets that are particularly attractive: Close proximity to nature, high-quality food products and distance from regions with high tourism intensity.

In the agricultural sector, the COVID-19 pandemic had positive impacts on short-circuit retail, even though this was already very present in the Diois region before the pandemic. The impacts on the different agricultural sub-sectors were different, though:

[33] https://www.valais.ch/de/info/landingpage/100-franken-gutschein, https://www.zaemu.ch/

- Local production (e.g., market gardening, cheese, meat): There was little economic impact, but a need to adapt logistical aspects (e.g., delivery and parcel collection points) regularly and to better cooperate.
- No particular difficulties were observed in the sector of perfume, aromatic and medicinal plants (PPAM).
- The viticulture, representing a large part of agriculture in the Diois territory, was and still is greatly affected. Sales are falling sharply, stocks are increasing. Winegrowers are facing a remarkable loss of income in 2020. Due to a significant drop in harvest quotas in 2020, the COVID-19 pandemic will also lead to a decline in income for 2021. This has further negative impacts on the local economy.

Policy responses with a focus on the key sectors of green economy

The policy responses were mainly dominated by the French recovery plan (see chapter 3.2). Its different pillars and measures in the fields of ecology and climate as well as territorial cohesion have diverse impacts on economic development in Diois region. Regional bottom-up initiatives are mainly oriented towards the implementation of short circuits in the food sector. Initiatives mainly focus on local production and consumption: A website was created to list all the farmers who sell their products online, including a possibility to place orders online.

Impact on sustainability

Due to the immediate impacts of the COVID-19 pandemic, it was important for the local actors to find answers as fast as possible. Local key actors in the Diois region observe that the COVID-19 pandemic has changed the thoughts and attitudes on green economy and sustainability mainly in a short term and solution-oriented manner: Citizens organize themselves at the community level to install local food chains and strengthen the producer-consumer relations. In the tourism sector, accommodation providers change their thinking and start working differently in communicating and promoting their region, shifting more and more towards quality-oriented tourism. With regards to the impacts on sustainability, local stakeholders say that the pandemic does not affect or change sustainability goals in the Diois region as such but enables them to be achieved sooner than anticipated.

4.3 Soča valley in Slovenia

The Soča valley pilot region has been affected by the COVID-19 pandemic mainly in the fields of tourism and agriculture. Recovery measures at national level as well as local bottom-up initiatives help to reduce the negative impacts. Local stakeholders say that, at least regarding tourism, the pandemic confirmed, that the strong nature-based approach (e.g., hiking, kayaking, camping) is promising and sustainable.

Sensitivity and expected impacts

The COVID-19 pandemic had mainly impact on the tourism and the agricultural sectors. Due to the closures of borders, the number of tourists from Italy and Austria decreased significantly. Public transport was not in operation at all. The first lockdown shortened the winter season 2019/2020. The main problem is the second wave of Corona that implied another lockdown for the area. Actually, the economy is still active, but tourism is closed down once again because of restrictions first to the region, now to the municipality, e.g., closing of bars, restaurants, hotels,

prohibition of events. On the positive side, the period of the crisis was used for maintenance work. In addition, touristic branding had to be revised in short terms.

All in all, the number of visitors in the Soča valley reached 83 % of the total number for 2019 already by the end of August 2020. Without the second COVID-19 wave, the final number of tourists would most certainly have been higher in 2020 than in 2019. However, also the structure of the guests changed. In 2020, the majority were domestic tourists making use of vouchers and discovering new places within their home country.

In the agricultural sector, several negative but also positive effects could be observed. On the negative side, several supply chains changed because only essential services were allowed to operate. People also adjusted their consumption behavior and focused on durable instead of fresh food products. As important markets were shut down (e.g., schools or big companies), also larger producers faced particular challenges.

However, local stakeholders also see some positive side effects. First of all, a general shift could be observed from global and international to local and regional products. The overall awareness for self-sufficiency in food supply and the mutual dependency of places increased. As a consequence, some businesses started organizing new logistics chains and marketing activities, e.g., local products were promoted via local communication channels. This also entailed new forms of cooperation between local businesses and the development of new and innovative products.

Besides tourism and agriculture, the overall economic situation slowly returned to the pre-COVID-19 status during summer 2020.

Policy responses with a focus on the key sectors of green economy

On the one hand, the region gets support from the Slovenian national recovery plan (see section 3.2). There are different subsidies for staff (reduced work, waiting for work etc.). A key element was the tourism voucher for Slovenian citizens of up to EUR 200. Vouchers could be used in Slovenia to purchase accommodation with breakfast or only accommodation. This was not directly targeting the green accommodation or regions focusing on green tourism, but it was obvious from the statistics that so-called green destinations were the most popular among Slovenians.

Hence, one could say that the vouchers saved the summer season in the Soča valley. In addition to the national support mechanisms, bottom up-initiatives played an important role in reducing the negative impacts of the crisis:

- 'Planika' dairy had a lot of excess milk as they focus their production on fresh milk in addition to other dairy products and the demand dropped significantly at the time of the lock down. They made a special ad-hoc agreement with another Slovenian dairy to produce UHT milk as a part-time solution and to save the ingredient.
- The Michelin star holder and world's best female chef (2017) Ana Roš focused her restaurant mainly on foreign guests. She used the first lockdown to develop new projects with her team. One project is a new line of culinary products that she developed in cooperation with a Slovenian market chain called Tuš. It focuses on high-quality local ingredients from local producers and creativity.

- 'Faronika' is a fishfarm focused both on repopulation of marble trout and also production of fish for the market. They sell fish mostly to schools, kindergartens etc. During lockdown these channels were closed. In order to save the production, a company focusing on fish paste decided to buy the excess fish and make a new line of fish paste. This product was branded as support to the local green economy and as a showcase. There was a strong marketing campaign to support the idea. The cooperation also included the retail chain Mercator that together with the producer of the fish paste decided to produce and sell the product but not to make any profit.

Impact on sustainability

Local key actors observed that during the first lockdown phase in spring 2020, many stakeholders were under heavy pressure and did not take much time for strategic reflections towards more sustainability when facing the first impacts of the crisis. When reflecting the results of the crisis at the end of summer 2020 the COVID-19, local stakeholders say that the pandemic confirmed at least the right approach of the Soča valley tourism destination. Being branded as green has been also seen as being safe and close to nature. Slovenian tourists spent about 25 % off all vouchers in destinations within the Julian Alps. Other hotspots were the coast and wellness destinations.

The destination of the Julian Alps is developing a 'living room' approach. It means that the tourists are invited into a place that is intimate and they have to respect the people that have invited them as well as the surroundings. In a way, the thinking gained another push towards sustainability goals. Many initiatives and products that started after the first COVID-19 wave have just entered the market and this first phase is essential for their survival. According to the view of locals it is therefore very important that the restrictions in the second and potential future pandemic waves do not cut supply chains for a longer period of time. This is especially important for small and medium-sized enterprises.

4.4 Außerfern and Garmisch region at the Austrian-German border

The pilot region 'Euregio Zugspitze-Wetterstein-Karwendel' is characterized by a well-developed cross-border co-operation. Both regional management and political players are widely used to collaborate with the objective to solve problems commonly and to develop new initiatives. Therefore, the COVID-19 pandemic and the closure of the Austrian-German border constituted a severe interruption of well-established cooperation routines.

Sensitivity and expected impacts

The Euregio ZWK has a small share of industrial companies and focuses on tourism, agriculture and health business. According to local key actors, the tourism sector is most affected by COVID-19, and linked to it, many businesses within the supply chain for tourism services. The first lockdown in spring 2020 could mainly be compensated by a large number of tourists during summer. Many hotels and tourism companies do, however, not have enough funds left to compensate for another period of reduced income. Further lockdown measures for the winter season 2020/2021 are therefore expected with anxiety. In line with the very intense summer season 2020, other problems became very apparent. There is an urgent need for more public transport, visitor guidance and sustainable mobility. Players from different sectors reported about 'overtourism' with intensified pressure on nature and the environment. Looking at the attempt to increase the share of sustainable tourism, a gap between attitude and behavior of tourists can still be observed, as only 6.7% of German tourists in 2016 booked a sustainable

tourism offer whereas 71.2% indicated that they would be interested to do so (Kreilkamp 2019, 9; Schmücker et al. 2019). The behavior of tourists in 2020 caused problems for the traffic and the well-being of residents in the Euregio, as whole villages collapsed due to cars parking all around. Farmers could not access their fields anymore as the access roads were crowded with parked cars. As the majority of tourists only came for a one-day excursion, the benefit for the region was low, compared to the problems caused by the huge number of tourists.

Agriculture and regional food supply strongly benefitted from more conscious and sustainable consumption behavior. People became more aware of the vulnerability of supply chains, rethinking the origin of food and developing a new interest in regional products and producers. Village food shops and direct selling from farmers have steadily increased, and this trend seems likely to continue according to local actors. Farmers and shops developed new distribution and innovative marketing strategies, e.g., collective buying of meat from regional farms in cooperation with the butcheries or an app for real-time information on nearby regional products. A lack of digital marketing know-how, spirit and equipment has been recognized by the producers.

The handicraft and the energy sectors were able to carry on in a stable manner during the COVID-19 pandemic, with only some problems in staff and supply chains, local actors reported.

Policy responses with a focus on the key sectors of green economy

For the tourism sector, both in the German and Austrian parts of the pilot region, different funding schemes are available to promote investments into new and sustainable tourism infrastructure.

The region is initiating a new concept for visitor guidance and sustainable mobility. Fast solutions are, however, difficult due to the complexity of the topic. New train lines and more frequent services are only possible in the long run due to complicated tender procedures and construction measures, e.g., an improved train connection on the existing railway lines to Munich is only going to enter into operation in 2025. Meanwhile, creative solutions concerning the management of parking space, shuttle buses or shared mobility services have to be developed jointly, followed by good communication measures for new green mobility services to the tourists.

In agriculture, support is available for local initiatives to produce or sell agricultural products, however with special focus on organic farming etc. Policy support in the agricultural sector, for example, has to create appropriate framework conditions for small-sized (milk) farms which are still typical for the region.

Impact on sustainability

The pandemic increased the awareness on the limits of our current lifestyle and corrected priorities in a way that people recognized the value of family, health, being in nature and healthy regional food. There is a constant and stable trend in the region on reflecting consumption behavior and some initiatives for more organic and regional products carry on by now.

The regions of Außerfern, Seefeld and Garmisch-Partenkirchen have already longstanding experience with nature-based and sustainable tourism. The regional development strategies comprised sustainability targets already before the pandemic and many efforts are going on to create new and sustainable products and ideas. In general, the Euregio Zugspitze-Wetterstein-Karwendel considers itself to be well-prepared and willing to further invest into sustainability.

4.5 Conclusions and outlook

From the experiences gained in the pilot region, we can conclude that the policy responses at national level helped the pilot regions to cope with the COVID-19 crisis and the impacts of the first lockdown phase. Interestingly, all pilot regions developed additional bottom-up initiatives to reduce the negative impacts. Many of them involve local stakeholders and are oriented towards green and sustainable solutions.

Most companies in the pilot regions have managed to get through the first lockdown in spring 2020, but a second similar phase of commercial restrictions seems to be very difficult for many of them, especially where winter tourism plays an important role. Economic pressure would then partially override the efforts to create more sustainable products and services on the side of private companies. COVID-19 related state aid may, however, even be an obstacle for allowing for a structural change in the fields of tourism and services towards more sustainability because financial incentives are not necessarily related to greener production and delivery of services and products.

Regions which already have a priority on nature-based tourism are benefitting from a higher domestic demand and new visitor groups. The COVID-19 crisis has even confirmed the pilot regions in following their path towards a green and more sustainable tourism. The challenge that lies ahead, is to reduce day-tourism and to create offers for a longer stay in 'green tourism destinations'. This question is closely linked to various aspects of mobility and transport. Here creative solutions are needed, from policy, administration and companies. Where such solutions require (digital) marketing and branding skills at regional level, training measures are necessary.

At national or EU level, more favorable framework conditions are needed in the agricultural sector for small and medium-sized farms, in order to be able to develop attractive sustainable products and services (e.g., support of the legislation on transparent supply chains and no funding for harmful products). Policy responses in this sector unisono showed a move towards more regional products, however, without addressing the sustainability of the agricultural production itself.

The economic pressure for many companies and service suppliers was and still remains high due to the COVID-19 pandemic. It is therefore essential to achieve a common understanding of how the economic recovery process should look like. For example, what may be the conditions for participating in investment schemes or receiving grants – working in a more sustainable way or getting 'back to normal'? Policy makers have to provide impulses for change and should moderate a dialogue between all involved parties in order to achieve green recovery processes. The crisis must not be wasted.

5 Never waste a crisis – the recovery process as a pathway towards sustainability?

In a Nutshell: Starting Points for Discussion

The COVID-19 pandemic is an unprecedented challenge and disruption. Because of a high degree of uncertainty, little is known about the future. Different futures seem plausible – from a permanent crisis to a fundamental paradigm shift towards more sustainability.

Uncertain times challenge our thinking and require us to scrutinize our practices and priorities. Hence, they also offer momentum for societies to reorientate and explore new pathways.

Policies that focus on environmental protection, new technologies and sustainable innovation can strengthen the sustainable dimension of recovery measures. They need to bring together environmental and social concerns and need to be based on solidarity, cooperation and continuous monitoring.

In how far recent policy measures will fulfil the above preconditions remains a bit vague. Still, the COVID-19 pandemic intensifies the impact and increases the visibility of unsustainable developments in key economic sectors. This might trigger new momentum for change.

Many policy initiatives for recovery refer to key concepts relevant for sustainability but whether they will play an actual role in policy implementation, remains to be seen. In this final chapter, we first provide an overview on different possible futures (section 5.1). Afterwards, we derive some general policy pointers and basic principles for sustainable recovery processes (section 5.2). Last but not least, we look into the four economic sectors and offer some access points for future policy responses to the crisis (section 5.3).

5.1 Uncertain futures

The COVID-19 pandemic is an unprecedented challenge for our societies and economies. It is a comprehensive disruption touching upon all aspects of our daily lives. Specific conditions characterize such disruptive times:

- **Disruptions come as a surprise.** Most societal groups do not expect a disruption and are not prepared to respond to it. This further intensifies the impact and increases the pressure to act. Under such pressure, people tend to go back to proven and tested approaches. However, these approaches contributed to solving yesterday's problems (Davoudi, 2012; Nair & Howlett, 2017). Given the new context, they are often no longer adequate.
- **Disruptions are wicked problems.** No shared understanding or definition exists of the problem that would somehow guide societies in developing solutions. Hence, solutions first need to be found in an open and flexible way. Outcomes of this process of testing are only relative, e.g., 'better', 'worse' than other approaches or just 'good enough' for the time being and under present conditions (Kreuter, De Rosa, Howze, & Baldwin, 2004).
- **Disruptions have hybrid impacts.** They concern all fields of society. Often, the most affected fields deviate from the fields from which the disruption originated – in this regard they are similar to disruptive innovations (Christensen, Raynor, & McDonald, 2015). Due their comprehensive impacts, related responses and solutions require a broad range of expertise and knowledge (Selhofer, Arnold, Lassnig, & Evangelista, 2012).

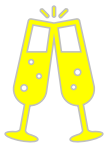
- **Disruptions entail deep uncertainty.** In times of disruption, different uncertainties prevail. It is not clear which options are most adequate or which consequences the different options will have. Also, the reliability of information and sources becomes more uncertain and past values that guided decision making and implementation are questioned (Hansson, 1996; W. E. Walker, Haasnoot, & Kwakkel, 2013).
- **Disruptions require improvisation.** Due to a lack of preparedness and experience, the obvious starting point for action is improvisation and the main objective is to avoid failure and develop responses that are sufficiently robust (W. Walker & Marchau, 2003). In this context, learning capacities play an important role because they decide about whether or not policy responses can be further developed and become more robust over time.

In times of deep uncertainty and disruption, scenarios and visions can help in getting an overview of possible and desirable future developments – they can help to weather through disruptive storms, discuss potential pathways and contribute to better decisions. With regard to the times after COVID-19, various scenarios seem to be plausible. They are based on answering two key questions:

- **How do we shape our economies?** Will we see a long economic crisis? Will we return to our traditional economic structure? Will we transform our economies?
- **How do we respond to (future) pandemics?** Will we see regular pandemic crises? Will we repress the risk of pandemics? Will we tackle pandemics effectively?

By providing different answers to these questions, Fink et al. (2020) identify eight possible scenarios:

- **Golden Twenties (traditional economy / repression):** COVID-19 remains a short-term shock. Soon, we return to the old normal and consume and move as before the pandemic. The focus is on existing industries. Digital transformation does not play a major role.



- **Pandemic Decade (traditional economy / pandemic crises):** Resilience is the new paradigm. New pandemics require new lockdown measures and result in regular economic crises. Societies have a strong need for security and healthcare and political systems are adjusted to increase resilience.

- **Farewell to the Known (economic transformation / effective handling):** Different challenges force societies to adjust their priorities. Within different global blocks, regional production prevails and lead to a decrease in global supply chains. Innovation shapes sustainable structural change. We see stronger regulation and increasing influence of public authorities.

- **A New Global Dynamic (economic transformation / effective handling):** COVID-19 has led to fundamental change in the global system, including a fairer trading system and globally shared responsibilities. With regard to the digital economy, Europe is on eye level with the US and China. Openness, innovation and education are key characteristics of the new era.

- **Massive Virtualization (economic transformation / effective handling):** The economic impact is limited. Yet, progress in digitalization leads to a more global mindset. The EU becomes an important digital player. Transparency increases and societies are open to new approaches. Physical distancing and risk aversion are essential parts of everyday lives.

- **In Corporate Hands (economic transformation / effective handling):** COVID-19 leads to acceleration of societal and economic structures and processes. Technological and biological-medical progress allow for ad-hoc responses to tackle future pandemics. Competition between global players in deregulated markets dominate and undermine the influence of public authorities and nation states.

- **Permanent Crisis (economic crisis / repression):** A severe recession entails a sharp increase in unemployment. Global trade plays no role. Different transnational areas strive for more self-sufficiency. Different crises occur simultaneously and lead to destabilization. Particular interests and disparities increase.

- **Collapse of Public Order (economic crisis / pandemic crises):** COVID-19 leads to an unprecedented global downward spiral. Nation states aim for isolation, which intensifies the global crisis. Nationalist forces are on the rise. The global finance system is destabilized and uncertainty increases. People are on their own and fight for their tribes. More and more people are left behind.

Some of these scenarios are more desirable and likely to happen then others. Each entails losers and winners. We may even see some scenarios in parallel in different parts in Europe or the world. This underlines the uncertainty of the future. As was shown in previous sections, many questions are open and on the table for discussion. This leaves scope for re-orientation and new policy choices to support long-term structural change and societal transformation towards more sustainability and equity in the Alpine region. However, related transformation processes are not only relevant for the Alpine region but for all regions and places. All economies around the world need to be transformed towards more sustainability. Otherwise, it will not be possible to achieve the United Nations Sustainable Development Goals or the Paris Agreement on Climate Change, for example.

5.2 Policy pointers for a pathway towards sustainability

But how can a pathway towards sustainability look like? How can we avoid short-sighted policy responses and promote strategic and future-oriented policy choices? Various key elements can be defined to guide and accompany the recovery process in the years to come (Umweltbundesamt, 2020a, 2020b):

1. **Strengthen environmental and climate policy.** Climate, environment, resource and nature protection are essential elements to increase the resilience of our societies and economies. More ambitious decisions need to be taken because global warming, pollution and the loss of biodiversity have impacts that are (at least) as severe as the impact of COVID-19. Recovery measures taken in the Alpine region leave a lot room for flexibility rather than a strong re-direction of public policies towards more sustainability and a clear green focus. Most policies initiated so far, seem to follow principles of the past. They seem to aim for cushioning the disruption rather than exploiting the

momentum for real change. Key policy areas are (i) renewable energy and building renovation, (ii) sustainable mobility, (iii) ecological transformation of the industry sector, (iv) local support programmes and (v) climate adaptation and nature-based solutions.

2. **Avoid lock-in through outdated technologies.** Support for the economy should not focus on unsustainable technologies. This would intensify the environmental crisis, hamper innovation and reduce competitiveness. Recovery measures should therefore focus on sustainable technologies so to enable and promote significant progress in the quality of technologies and production processes. Systematic support for green innovation and their market launch could be provided by means of demonstration projects and environmentally oriented public procurement, for example.

3. **Use funding for future-oriented structural change and sustainable innovation.** Investments should focus on sustainability and resilience. Green financial markets that consider environmental risks and promote financing for sustainable projects are important preconditions in this regard. The potential of digitalization should also be fully exploited. The reviewed recovery measures put emphasis on digitalization. However, past experience has shown that many European regions are rather slow in delivering on digitalization needs and exploiting related opportunities. New financial products and green financial markets, on the other hand, do not seem to be within the scope of recovery measures so far (Guttenberg & Mack, 2020).

4. **Promote a sustainable economic framework, considering social consequences.** The environmental and social impact of support measures needs to be assessed and considered for the recovery process. Environmentally harmful subsidies and regulatory obstacles should be removed. A new taxation system can contribute to re-financing the enormous public expenses. Many recovery measures explicitly refer to social aspects of the pandemic and recession. Still, it is unclear whether the measures can be really effective in the mid-term or only cushion short-term effects. Little information is available on how the recovery measures could establish stronger links between social and environmental concerns.

5. **Strengthen European solidarity and cooperation.** The economic and social consequences of COVID-19 can only be tackled conjointly. Stronger countries need to show solidarity with weaker countries and those countries that were hit hardest by the pandemic. Available public funding should be spent for socio-ecological transformation of European economies and development of sustainable and resilient infrastructures. Suitable access points for joint action at EU level would be (i) a European Green Hydrogen Economy, (ii) joint key initiatives in the context of the European Green Deal, (iii) joint guidelines for recovery programmes, (iv) higher lever through green bonds by the European Investment Bank, and (v) greenhouse gas neutrality as key principle for the EU recovery plan and budget 2021-2027 (Agora Energiewende & Agora Verkehrswende, 2020). No doubt – the proposed EU recovery plan is a historic milestone – because of both its size of EUR 1.85 trillion (Next Generation EU and multi-annual financial framework 2021-2027) and its financing, inter alia, through joint debt. However, the closure of national borders, lengthy negotiations at the July 2020 EU Council summit and the veto by the Polish and Hungarian Governments in November 2020 showed the degree of division between EU member states. This puts serious

doubts on the degree of solidarity needed. It seems that COVID-19 has not led to significant change in this regard: When push comes to shove, EU member states put national interests first. A new vision for Europe can help in this regard and provide guidance and orientation. It can be the policy framework for joint action (Lüer & Böhme, 2020a, 2020b).

6. **Monitor and evaluate stimulus programmes as regards sustainability.** A monitoring system can be used to assess the impact of the different programmes on the environment, the climate, sustainable development (SDGs), employment and distribution. Lessons learned from these monitoring activities should be used for re-adjusting existing and designing future programmes. First and foremost, the recovery measures taken in the Alpine region focus on the immediate effects of the pandemic and the recession. The long-term perspective seems to be rather weak. The impact of recovery measures on sustainable development does not play an important role. To start with, EU, national and regional players could think of how a system to monitor the link between the SDGs and the recovery process could look like, e.g., based on approaches used for territorial impact assessments.

5.3 Sector-specific access points for action

In addition to more general policy pointers, also some access points can be identified that are crucial for the transformation process in the four economic sectors which are of particular interest for the research project. The following access points are the outcome of an interactive exchange during a webinar that was hosted by the project team in the first days of December 2020. Representatives from the four pilot regions as well as other interested experts working in Alpine regions took part in the webinar.

Tourism

- Stop of the investment spiral for Alpine mass tourism industry
- Joint approach of all Alpine States and their marketing organizations for more sustainable tourism offers, reflect on high quality tourism considering sustainable lifestyles as well as local and regional carrying capacities
- Make use of the need for green spaces and recreation felt during COVID-19 and take the momentum for re-thinking tourism and recreation towards further sustainability
- Improve visitor guidance in order to avoid conflicts between tourism, nature protection and agriculture/forestry systems, especially in highly frequented destinations
- Improve public transport in rural areas and reduce number of cars and tourists coming to destinations with sensitive ecosystems and offer attractive alternatives for the people
- Identification of regional boundaries of tourism and inter-municipal cooperation schemes
- Capacity building, show tourism stakeholders that good practices are working and connect locals with service providers
- Consider the required issues in the upcoming EU-programme documents
- Ecosystems, put some boundaries and offer attractive alternatives for the people

- Diversify the economic basis in the Alps and reduce dependency from tourism sector in the Alps

Agriculture, forestry & food industries

- Improve exchange and cooperation between different (sub)sectors
- Invite people to get to know their producer of food
- Connect people to work on strategic approaches for developing and managing regional chains of economy
- Change the stakeholder set-up: more room for local initiatives, regional co-operatives
- Reduce large scale agricultural settings and support regional farming
- Make organic farming compulsory and stop subsidies for big farms
- Provide suggestions on how to change EU CAP to make the above changes possible

Mobility and energy

- Better integration of Alpine-wide / cross-border public transport, including one-stop shops for information, ticketing etc.
- Better adjustment of mobility solutions to the needs of both tourists and citizens
- Stronger emphasis on bicycles as a means of every day as well as leisure mobility, also in rural areas
- Less freight transport through stronger local and regional supply chains
- Better integration and cooperation of long-distance transport and local mobility with special attention to the “last mile”
- Better awareness among citizens for low-carbon options
- Consideration of external costs of transport, carbon tax
- Respect for natural limits: Only consume the energy that is produced within the region
- Learning and exchange through platforms and from good practices across the Alpine area
- Better integration and cooperation of spatial/land-use and transport planning, also across national borders
- Smart mobility services that are in line with specific local contexts, e.g. car sharing, cargo bike rentals, weekend transport services to selected destinations
- Better opportunities to work at home so to reduce commuting, including co-working spaces in rural areas

Overall, we see that the mentioned access points for action are not fundamentally new, nor are they exhaustive. Many of them have been on the table for a long time and there are further relevant access points to think of. Yet, the COVID-19 pandemic functions like a burning glass. It intensifies the challenges deriving from unsustainable developments. The crisis increases their visibility and actual impact. This leads to increasing awareness among citizens as well as

decision makers. It might, eventually, trigger new momentum for change towards more sustainable developments in the Alps: An opportunity not to be missed – a crisis not to be wasted.

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