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Behavioural changes in tourism in times of COVID-19

*Employment scenarios and
policy options*

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Abstract

The present report provides an analysis of the potential effect of the COVID-19 outbreak on EU employment, as the result of tourism flow slowdown. Based on the results of recent surveys, conducted between April and May 2020, the document quantifies the potential changes in tourist behaviour during the Summer and Autumn of 2020, as consequences of travel and mobility limitations, psychological and economic factors. Therefore, three potential scenarios for the coming months (from June to December 2020) in relation to the volume to tourist arrivals are described, depending on the evolution and spread of the virus. Subsequently, considering the tourist-employment relationship, the report displays an estimation for the number of jobs at risk ⁽¹⁾ in EU in 2020, as a result of the slowdown of tourism activities. The reports concludes by providing policy recommendations for the short, medium and long-term.

⁽¹⁾ Jobs at risk is not the same as lost jobs. Jobs at risk could be jobs at risk of reduction in working hours (and consequent reduction of compensations) or permanent jobs losses. Furthermore, it can also represent a loss of opportunity for temporary/seasonal workers, who are unemployed or who supplement annual income with summer jobs.

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Executive summary

Headlines

- The COVID-19 health crisis is affecting consumer willingness to travel and destination preferences
- We predict a decline of tourist arrivals in EU between 38% and 68% in 2020
- Subsequently, between 6.6 and 11.7 million jobs could be at risk of reduction in working hours or permanent jobs losses in 2020
- A strong heterogeneous impact between and within EU countries is expected
- The solution is likely to be local and European, calling for efficient multi-level governance
- Reshaping of Smart Specialisation Strategies (S3) towards sustainability (S4) may play a key role in the recovery process
- Opportunities exist in new digital and green solutions and business models
- Diversifying tourism value chains and making places less tourism dependent can increase resilience
- Optimal use of support programmes can speed up short, medium and long-term recovery

Policy context

The world is experiencing an unprecedented situation. The COVID-19 outbreak is the third recognised disease transmitted from animals to humans in only two decades that has resulted in a major epidemic (**Gorbalenya et al., 2020**). Nevertheless, the singularity of the current situation lies in the spread of the virus, its geographical coverage and the measures implemented by governments to stop its dissemination (mobility and travel restrictions, lockdown, confinement, closure of shops and hotels, etc.).

The tourism sector contributes, directly or indirectly, to all of SDGs goals. In particular, it has been included as targets in Goals 8, 12 and 14 on inclusive and sustainable economic growth, sustainable consumption and production (SCP) and the sustainable use of oceans and marine resources, respectively.

As an economic powerhouse representing 10% of world GDP, 30% of services exports and 1 out of every 10 jobs in the world, is one of the most affected in terms of revenue and employment, as any restriction on people movements within and between countries has a negative effect on this sector. Even if all countries and regions are affected, the magnitude of the effect depends on the sectorial specialisation. Even if all countries and regions are affected, the magnitude of the effect depends on the sectorial specialisation. Therefore, there is a clear need to identify which countries and regions are most dependent on the tourism sector, in order to design the most appropriate targeted policy support.

Key conclusions

After the Spring 2020 lockdown, and if the conditions for travelling are met, tourist behaviour and choice are affected by psychological and economic factors. Psychological factors, related to the fear of contamination as long as there is no vaccine or treatment, impact on the willingness to travel and on the conditions of and preferences for holiday destination. Economic factors are associated with the reduction of household income, as a consequence of unemployment or working hours reduction.

The potential scenarios for the next coming months (from June to December 2020), based on changes in consumer behaviour, foresee a decrease of tourist arrivals in EU between 38% and 68% in 2020 ⁽²⁾. This fall in demand is likely not to be in line with the existing employment level in tourism industries. Currently, most of the companies have survived thanks to European and National measures (e.g. special lay-off schemes and access to special bank loans or subsidies to support liquidity). In June 2020, the EU member states started to re-open progressively their borders, to allow again citizens' mobility. However, as at the date of publication of this report ⁽³⁾, the disease is still active worldwide and there is no vaccine/treatment yet, willingness to travel could be affected.

⁽²⁾ Results in line with the prediction of **UNWTO** (2020), where scenarios point to declines of international tourist arrivals between 58% to 78% in 2020 for worldwide.

⁽³⁾ The study was conducted between 15th April and 15th June 2020.

Between 6.6 and 11.7 million jobs, depending on the scenarios, could be at risk of reduction of working hours (and consequent reduction of compensations) or permanent jobs losses in EU ⁽⁴⁾ in 2020. These jobs at risk represent between 3.2% and 5.6% of the total active population of EU. Certain countries are and will be more affected than others, and within each country there are also regional differences. Regions with an eco-system strongly dependent from tourism sector and international tourism market, will be probably the most affected.

Policy recommendations

Therefore, the solution is likely to be local, as each region is differently affected by COVID-19. In addition, changing consumer preferences hold opportunities for more diversified and sustainable forms of tourism, building on Europe's diversity. Smart Specialisation Strategies (S3), as a governance model based for place-based innovation is well suited as a tool for multi-level governance towards more sustainable tourism. Reshaped towards Sustainable Smart Specialisation Strategies (S4) it could play a key role in the post Covid-19 recovery process. Actions are required in the short, medium and long-term.

Related and future JRC work

This study is published as a continuation of the work carried-out by several DGs of the European Commission in the last months ⁽⁵⁾, to provide to policymakers with a concrete picture of the past, current and possible future repercussions of the COVID-19 outbreak in the European economy.

⁽⁴⁾ In the present study EU refers to EU27.

⁽⁵⁾ An overview of the importance of tourism ecosystem in Europe is available in the following link: https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/travel-and-transportation-during-coronavirus-pandemic/eu-helps-reboot-europes-tourism_en#document

1 Introduction

In 30 January 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a “Public Health Emergency of International Concern”, and a pandemic on 11 March 2020. First identified in December 2019 in Wuhan, the capital of the Chinese province of Hubei, this infectious disease quickly spread across the world in a few weeks.

The COVID-19 outbreak is leading in both the short and medium terms to a huge economic crisis, with the **tourism being one of the most affected sectors** in terms of revenue and employment (**del Rio-Chanona et al., 2020; Fana et al., 2020**). The World Travel & Tourism Council (WTTC) estimated that the **global economic impact on the tourism industry would be more than 5 times larger than the impact of the 2008 global financial crisis (WTTC, 2020)**.

Tourism is one of the sectors most vulnerable to crises, natural and human-caused disasters (Pforr and Hosie, 2008). Its **recovery period is often longer in comparison with other businesses**, particularly if the image of the destination’s attractiveness is affected by the crisis or disaster (**Cassedy, 1992; Liu and Pratt, 2017**), namely in terms of tourist safety.

Therefore, the **countries and regions that will be most affected by COVID-19 are those where the tourism sector is most relevant for their economies**. However, the singularity of the current health crisis also lies in the measures adopted by EU governments to stop the disease and the spreading of the virus, such as lockdown, confinement and travel limitations. Once the definition of tourism ⁽⁶⁾ includes the concept of travelling, any restriction on people movement within and between regions/countries will have a negative effect on this industry.

Between April and May 2020, 100% of all worldwide destinations introduced travel restrictions in response to the COVID-19 pandemic, through the closure of borders for tourists and suspension of international flights (UNWTO, 2020).

After a closure period of about 3 months (between middle March to June 2020, depending on the EU country) in the first semester of 2020, hotels, food and beverage establishments, historical and recreation sites and other tourism related activities re-opened but imposing several sanitary and health measures. Some examples are the reduction of the number of people in the same area, cleaning/disinfection of spaces several times a day, the mandatory use of masks by staff and tourists, prohibition of buffets in hotels and restaurants, among others. Such measures are expected to continue to exist while the disease will be active in the world.

Unlike most of the other economic sectors, the **tourism sector has difficulties to maintain its activity during a lockdown**. For instance, under some restrictions, the agriculture sector needs to continue its activity to provide food to the population, as well as the food manufacturing industry (at least part of it). The food retail sector may remain open and purchases have even increased [due to new consumer behaviour during the confinement ⁽⁷⁾]. The non-food retail sector, although closed, has been gambling on online sales as an escape plan, even though sometimes the infrastructure and transport services are unable to respond to the rise in demand. Some non-food manufacturing industries such as clothing or machinery/equipment have chosen (due to a market need) to develop another activity, namely, production of surgical masks and gowns or respirators, respectively. Teleworking has also been an alternative for some companies, essentially in services sectors, to continue their businesses and to mitigate the negative effect of the COVID-19 crisis. However, the **tourism industry, such as accommodation and long-distance air passenger transport, has no plan B, no options**, once the Spring lockdown obliged them to stop their activities and teleworking was not possible. For all these reasons, the tourism sector is most exposed to the shocks produced by confinement measures than any other industry.

This is particularly dramatic, since in some countries (e.g. Cyprus, Greece and Malta) the direct effect of accommodation activity alone represents between 3.5% and 5% of their total employment ⁽⁸⁾. Furthermore,

⁽⁶⁾ “Tourism refers to the activity of visitors, [which] is a traveller taking a trip to main destination outside his/her usual environment, for less than a year, for any purpose (business, leisure or other personal purpose) other than to be employed by a resident entity in the country or place visited” - **United Nations** (2010).

⁽⁷⁾ Confinement brings new consumer behaviours. Once households are at home, they have more time to cook. Furthermore, once they can’t go to the restaurants, part of their monthly expenses for food and beverage services are now used to buy food in the supermarket.

⁽⁸⁾ According to EUROSTAT data for 2017.

the economic activities included in the **tourism sector have a strong multiplier effect in the economy, both downstream and upstream along the value chain**. For instance, in the EU employment in **air transport-related activities** has a multiplier effect between 2 and 3.5 ⁽⁹⁾ (**InterVISTAS, 2015**), which means that **each job in this sector can generate between 1 and 2.5 additional jobs in the economy** ⁽¹⁰⁾.

The COVID-19 crisis is leading to an unprecedented situation, associated with a strong uncertainty about the duration and end of the health crisis. Probably, people movements will be limited or controlled until there will be a treatment for the disease and the tourism sector is one of the most affected about it. Even if **all countries and regions are affected, the magnitude of the effect depends on the number of confirmed cases/death and the sectorial diversification**. Subsequently, there is a clear need to identify which countries and regions are most dependent on the tourism industry, in order to design the most appropriate targeted support. Consequently, **the solution is not likely to be global, but local, as each region is differently affected by COVID-19**.

The aim of the present study is to provide an overview of the tourism sector in the EU ⁽¹¹⁾ in terms of employment and to estimate **how the slowdown of tourism activity is affecting the local-based economy**. This study was conducted between April and June 2020 and it is published as a continuation of the work carried-out by several DGs of the European Commission in the last months ⁽¹²⁾, to provide policymakers with a concrete picture of the past, current and possible future repercussions of the COVID-19 outbreak in the European economy. Furthermore, it contributes to existing literature by combining quantitative and qualitative data with Scenario-Based analysis.

The present report is divided into 7 sections. After the introduction, Section 2 defines and delimits the concept of the tourism industry. Section 3 provides an overview of the direct effect of the tourism sector on the European labour market. Section 4 estimates the relationship between tourist flows and regional employment. Section 5 presents some scenarios on the impact of COVID-19 outbreak on regional employment, as the results of COVID-19 effect on tourist demand ⁽¹³⁾. Section 6 displays the policy recommendations. The concluding section summarises main conclusions and findings of the study.

⁽⁹⁾ This value refers to a multiplier type II, which is estimated using the indirect and induced effects.

⁽¹⁰⁾ This value only considers the indirect and induced effect generated.

⁽¹¹⁾ In the present study EU refers to EU27. When figures refer to NUTS 2 level EU refers to the DOM-TOM (Overseas France) regions are not reported since the database used does not include them due to data limitations. When Figures and Tables refer to national data, also the outermost regions are included.

⁽¹²⁾ An overview of the importance of the tourism ecosystem in Europe is available in the following link: https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/travel-and-transportation-during-coronavirus-pandemic/eu-helps-reboot-europes-tourism_en#document

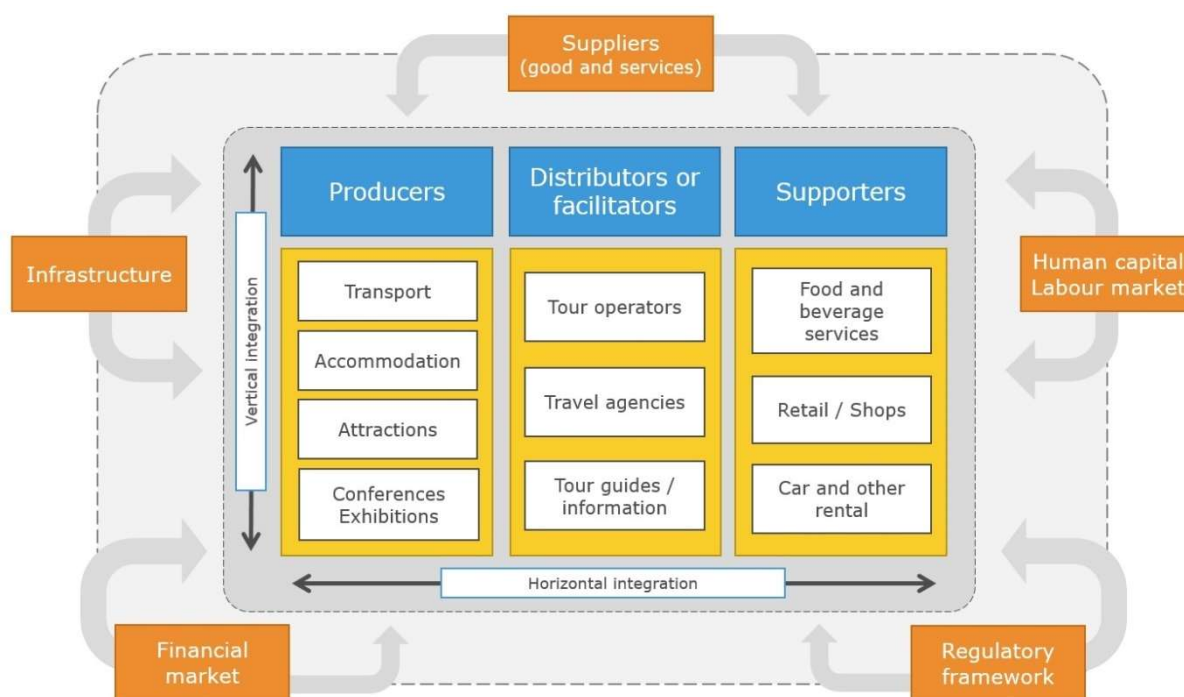
⁽¹³⁾ The description of the methodological approach used in section 4 and section 5 are reported in the appendix.

2 The tourism sector ecosystem: concept and actors

The tourism sector groups all production units in different industries that provide consumption goods and services demanded by visitors. (...) Tourism industries (...) are the activities that typically produce tourism characteristic products” (UNWTO and ILO, 2014:17-18).

The existence of several actors and economic activities related to the visitor/tourist experience (Figure 1) together with the absence of a clear and delimited tourism sector within the National and Regional Accounts make the measurement of its socio-economic effects particularly complex.

Figure 1. Tourism sector ecosystem



Source: Adapted from EC (2003).

Figure 1 includes the direct actors, involved in production, distribution and facilitation, and support, as well as indirect actors, involved in infrastructure, supply, human capital and labour market, regulatory and financial activities. In the front line of the sector, there are the accommodation establishments, which are supported by accessibility and the transport system (ensuring tourist mobility) and the attractiveness of a place represented in Figure 1 under attractions (cultural, natural and recreational activities) and conferences/exhibitions. Tour operators and travel agencies are the facilitators, distributors and intermediaries of the tourism activities. Food and beverage services, retail/shops and rental services (car and other equipment) are in turn, supportive activities in the tourism sector model. All different players in the tourism sector eco-system are integrated by vertical and horizontal collaboration. Outside this model, but related to them, there are all the suppliers of goods and services of the previously cited sectors, financial market, labour market, infrastructures and the regulatory framework. Infrastructure includes water, energy, wastes utilities, ICT, health system, among others.

To facilitate and harmonise the measurement of the overall contribution of tourism in the economy, the “Tourism Satellite Account” (TSA) was developed ⁽¹⁴⁾ to provide a standard statistical framework for quantifying the importance of this sector. The document includes the list of economic activities related to the tourism industries (Table 1) to help producing harmonised statistics across countries.

⁽¹⁴⁾ For more details, see **Statistical Commission** (2008).

Table 1. List of tourism industries/activities by tourism-related intensity (mainly or partially)

Tourism industries/activities	Tourism-related
1 Accommodation services	Mainly
2 Food and beverage serving activities (or services)	Partially
3 Land (railway and road) and water passenger transport services	Partially
4 Air passenger transport services	Mainly
5 Transport equipment rental services	Partially
6 Travel agencies and other reservation services activities	Mainly
7 Cultural activities (e.g. museums and others)	Partially
8 Sports and recreational activities (e.g. amusement and theme parks)	Partially
9 Retail trade of country-specific tourism characteristic goods	Partially
10 Country-specific tourism characteristic services/activities	Partially

Source: Adapted from **Statistical Commission** (2008).

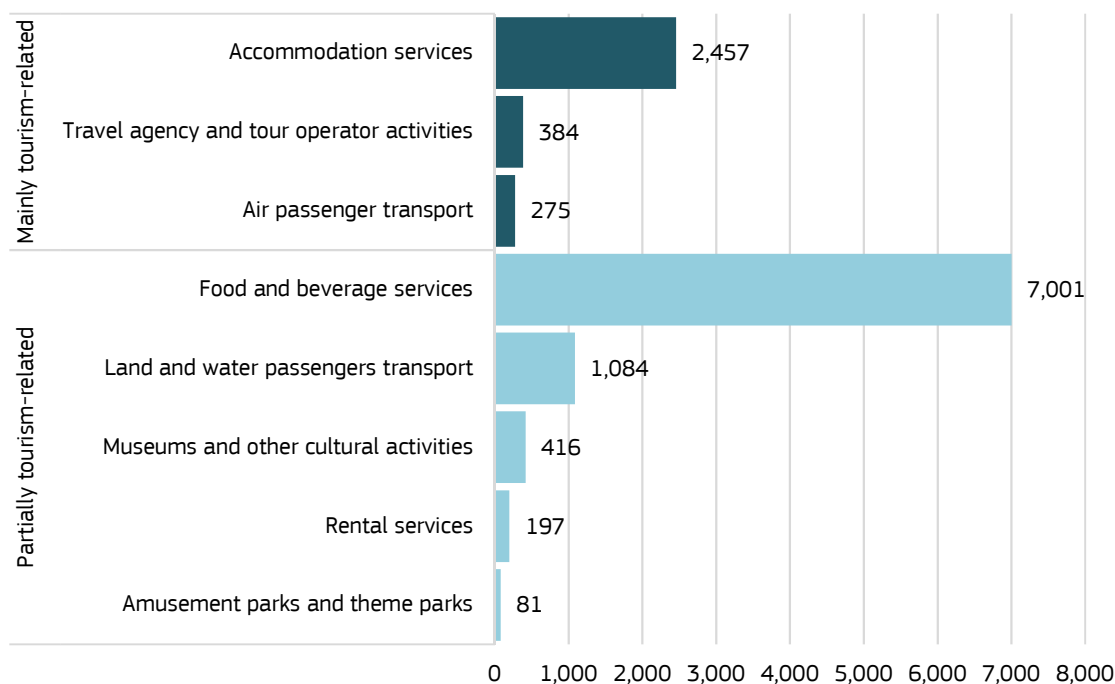
However, not all the outputs (e.g. employment, turnover and value-added) of the activities listed in Table 1 should be included to measure the effect of the tourism sector. Indeed, the contribution of some of the listed activities can be only partially imputed to tourism. This implies that the effect of non-visitors (i.e. residents) is also accounted for the volume of employment and revenue generated by these economic activities. Merely, accommodation, travel agencies and air passenger transport are economic activities whose output can be directly and totally imputed to the tourism sector.

To deal with the issue of identifying the proportion of the output of partially tourism-related activities in relation to the tourism sector, the use of an allocator is recommended (**UNWTO and ILO, 2014**). However, detailed information about the expenditures of visitors/tourists in all the listed economic activities in Table 1 is not always available. For this reason, tourism statistics reported in some institutional websites are usually reported making a distinction between mainly tourism-related and partially tourism-related contributions. For more details about the NACE classification of the activities included in tourism sector, see Table 6 in Appendix.

3 Mapping employment in tourism industries

Direct employment in the EU in mainly and partially tourism-related activities represents more than 3 and 8.7 million ⁽¹⁵⁾ jobs respectively (Figure 2). Together, all tourism industries are responsible for more than 6% of the total employment in the EU. Accommodations and food and beverage services are the central providers of employment in the tourism sector (Figure 2).

Figure 2. Employment (n° persons employed - thousand) in the tourism-related industries by activities, EU, 2018



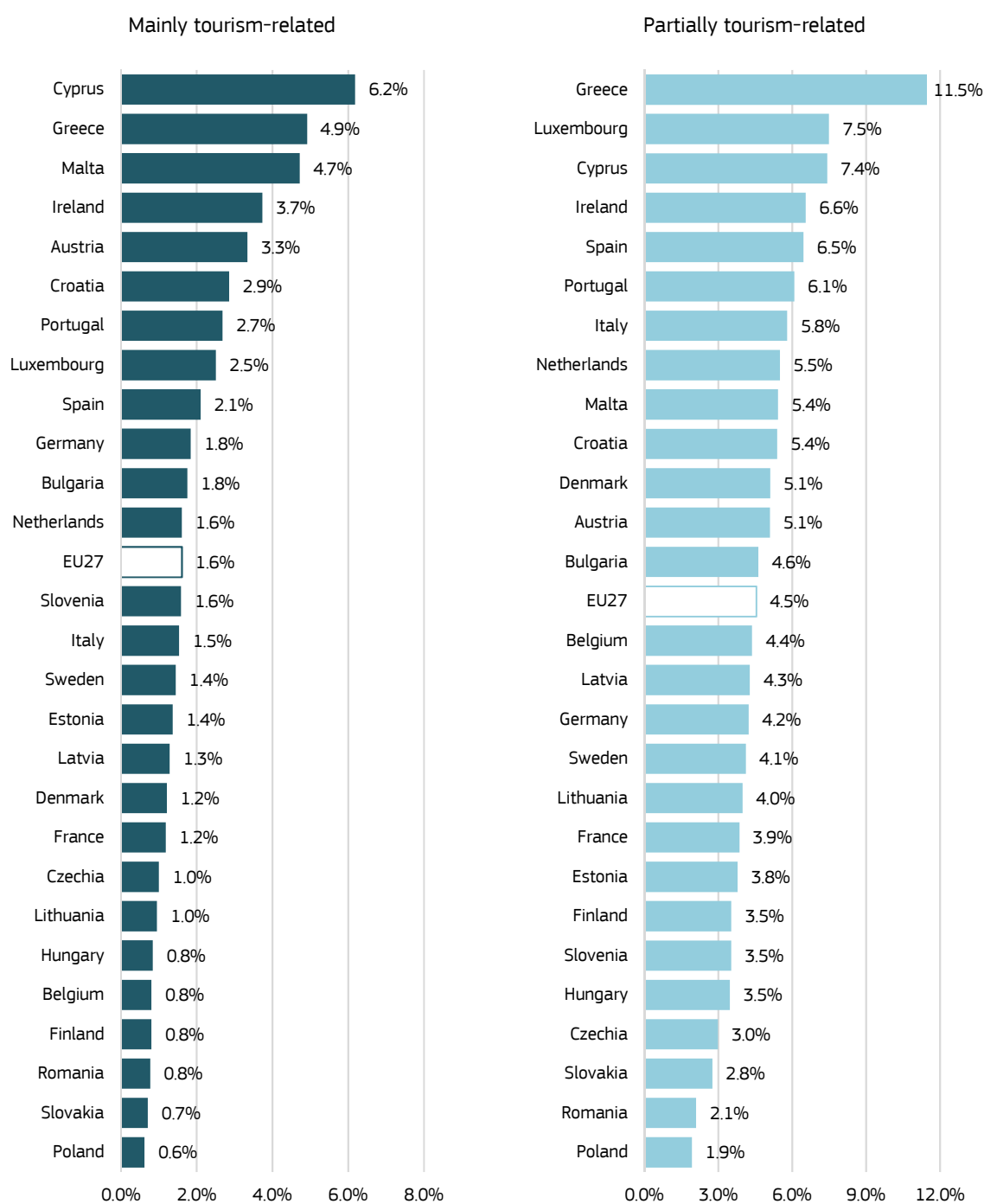
Employment reported in partially tourism-related sectors included the total employment of these activities generated by visitors/tourists and non-visitors/residents.

Source: Own calculations based on EUROSTAT and ORBIS data (see methodological details in Table 7 and Table 8 in Appendix).

The contribution of tourism industries to the national economy is particularly important for Greece and Cyprus (Figure 3) where tourism-related activities account for 16.4% and 13.6% of the total direct employment, respectively. Germany displays a higher volume of employment, with more than 2.4 million people working in tourism industries (Figure 4), however, their contribution to national employment is only equivalent to 6% (Figure 3).

⁽¹⁵⁾ The value of employment in the partially tourism-related industries reports the sum of the outputs generated by tourists (overnight visitors), excursionists (same-day visitor) and residents' consumption. An estimate of the exclusive contribution of tourists for some partially tourism-related industries can be made based on the disaggregation of their expenditures (Table 11 in Appendix). For instance, we can estimate that tourists contribute to about 18% of the total employment in food and beverage services. However, we do not have enough data to replicate the same exercise for all partially tourism-related activities, or for the contribution of same-day visitors.

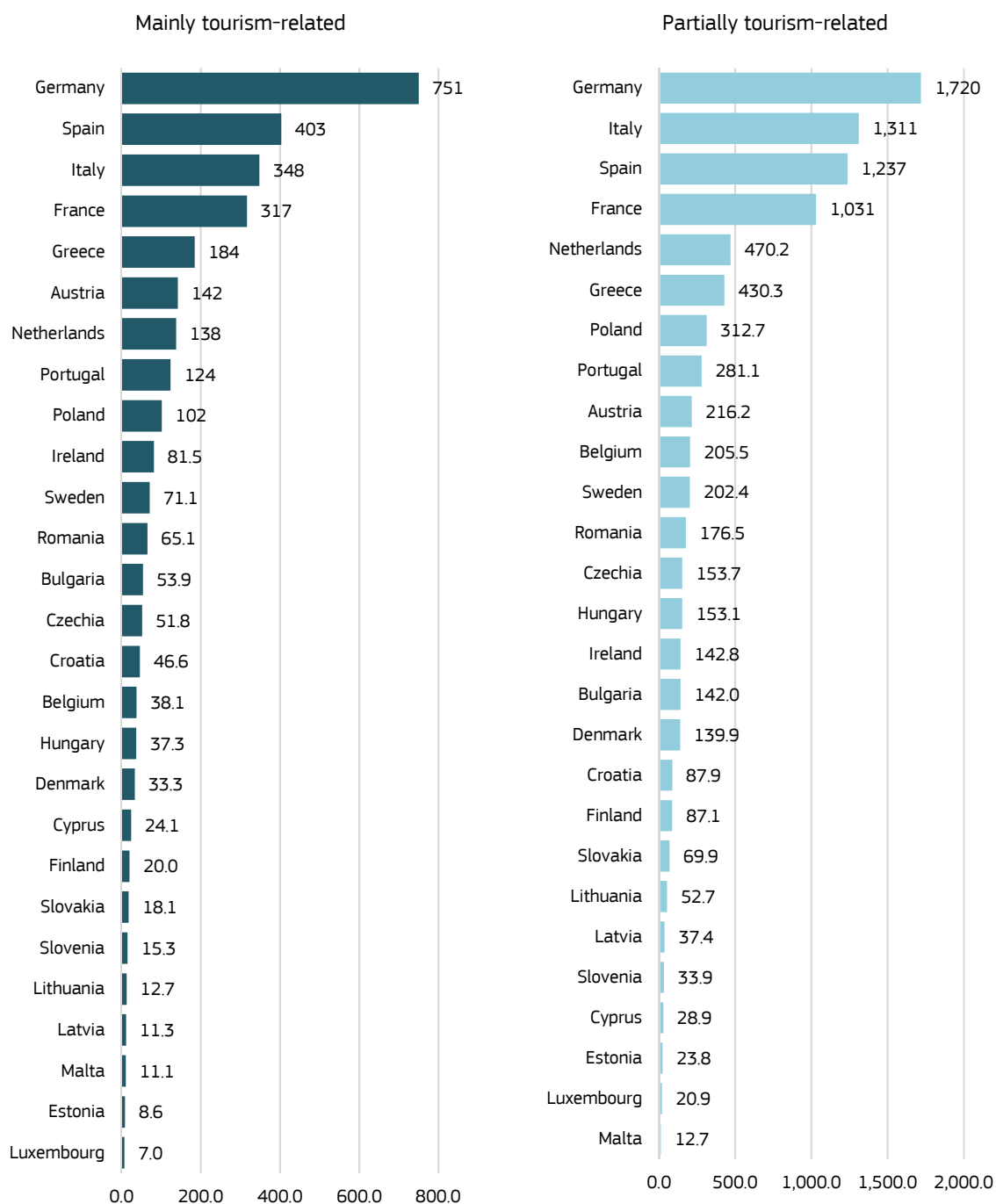
Figure 3. Employment in tourism-related activities by EU countries (% total employment in all NACE activities), 2018



Mainly tourism-related activities include accommodation services (I551, I552, I553 and I559), travel agency and tour operator activities (N7911 and N7912) and air passenger transport (H5110). Partially tourism-related activities include land and water transport (H4910, H4919, H5010 and H5030), food and beverage services (I5610 and I5630), rental services (N7711, N7712 and N7721), cultural activities (R9004, R9102, R9103 and R9104) and recreational activities (R9321). For more details see Table 7 and Table 8 in Appendix.

Source: Own estimation based on EUROSTAT data (see methodological details in Annex III).

Figure 4. Employment in tourism-related activities by EU countries (N° of persons employed - thousand), 2018

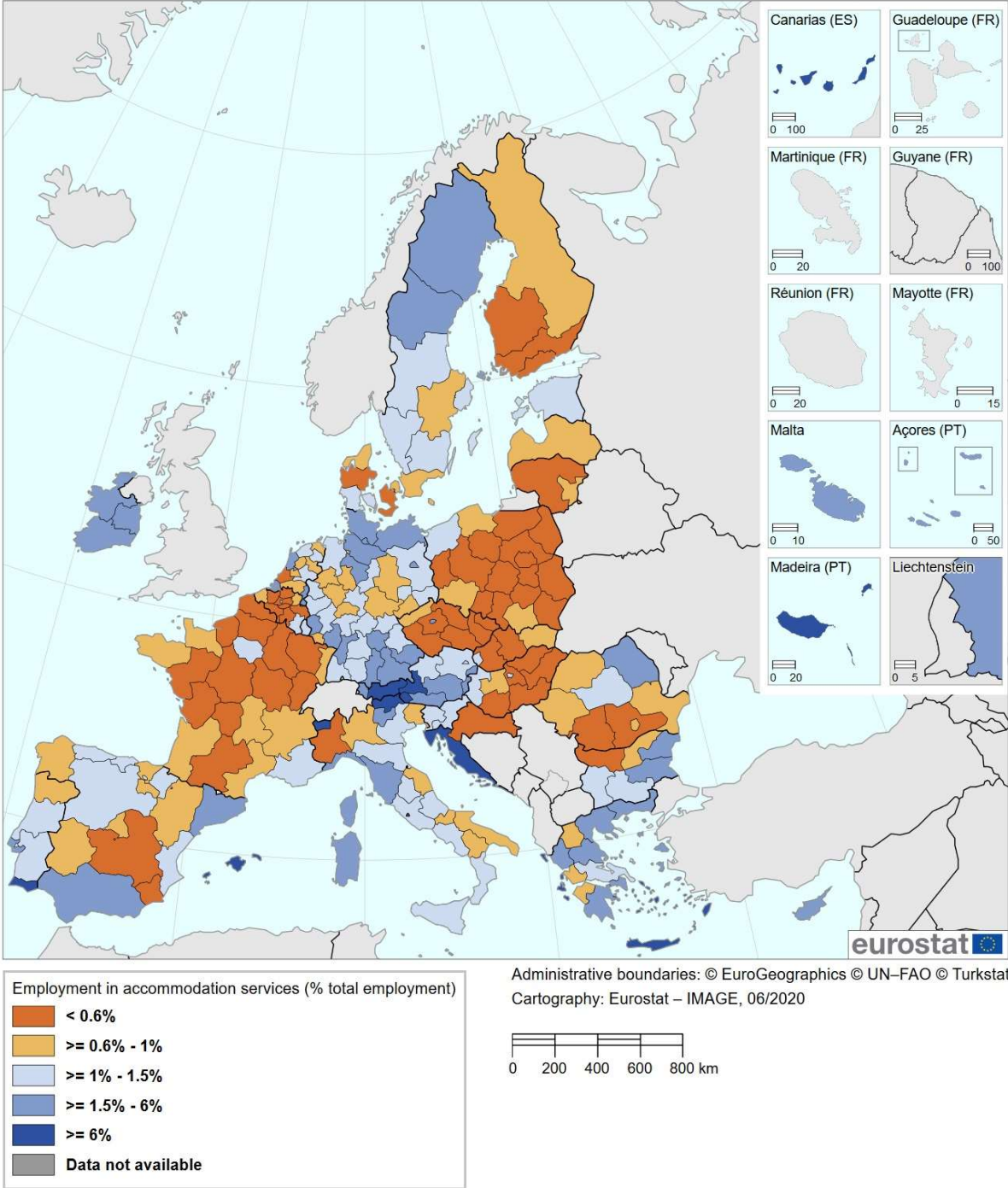


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Source: Own estimation based on EUROSTAT data.

At regional level, the key role of the tourism sector for the business dynamic is even more heterogeneous. Tourists are particularly important to maintain and create jobs in some Southern and Mediterranean regions. For instance, in some regions of Greece (Notio Aigaio – 29.1%; Ionia Nisia – 21.6%; Kriti – 12.2%), Portugal (Algarve – 11.9%), Italy (Provincia Autonoma di Bolzano/Bozen – 10.3%), Austria (Tirol – 9.4%) and Spain (Illes Balears – 8.8%) only the persons employed in the accommodation services represented more than 8% of the total employment in the territories (Figure 5).

Figure 5. Employment in accommodation services, EU, NUTS II level (version 2016), 2017 (% total employment)



Source: Own elaboration based on EUROSTAT.

4 Tourism flow and regional employment

Over the last two decades, tourism flows in the EU, as measured by the number of arrivals at tourist accommodation establishments, have **more than doubled** (Figure 6.). The development of low-cost carriers (LCC) in Europe since the 1990s, thanks to air liberalisation policy, with cheaper airfares, more connections and destinations, greatly contributed to the leverage of the tourist flows around the world (**Santos and Cincera, 2018**). The expansion of tourism activities is expected to enhance economic growth and stimulate the creation of new jobs ⁽¹⁶⁾, not just as the result of its direct effect on the economy but also through its multiplier effect on other sectors. Furthermore, **most of the activities included in the tourism sector are also highly labour-intensive, turning it a strong labour absorption industry.**

Figure 6. Evolution of arrivals at tourist accommodation establishments (in Million arrivals), EU23, 1995-2018

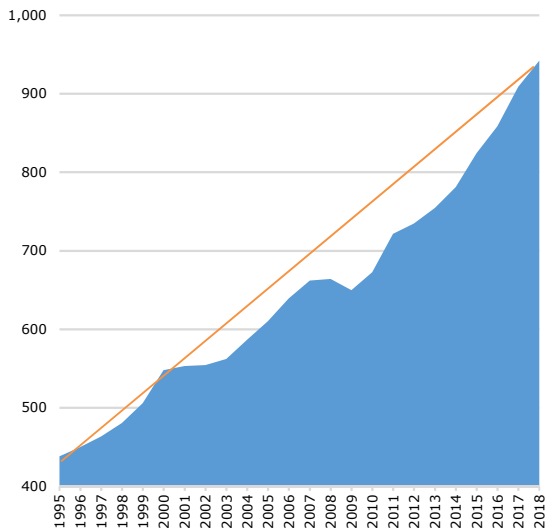
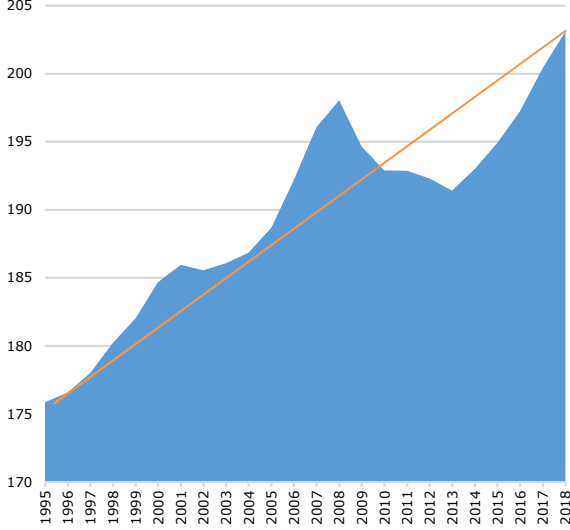


Figure 7. Evolution of total employment (in Million jobs), EU23, 1995-2018



Data refers to EU23, including Austria, Belgium, Bulgaria, Croatia, Czechia, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden. The other EU countries are not included due to the lack of full time-series data for the period 1995-2018.

Source: Own estimations based on EUROSTAT data.

The evolution of employment, between 1995 and 2018, also reveals an average positive growth trends (Figure 7), although with a different magnitude compared to growth trend in tourist arrivals (Figure 6). Both tourist arrivals and employment recorded a decrease in 2009, due to the great economic recession started in 2008, but with employment displaying a more accentuated break in this period and a longer recovery period. Nevertheless, Figure 8 and Figure 9 show that tourism flows (in level and intensity) are positively correlated with employment, suggesting that **tourism has the capacity to generate employment in the overall economy thanks to its multiplier effect and the involvement of several players operating in different economic activities.**

⁽¹⁶⁾ For more details see section “Background theory” in Appendix.

Figure 8. Relationship between employment level and tourist arrivals, EU25, 2000-2018

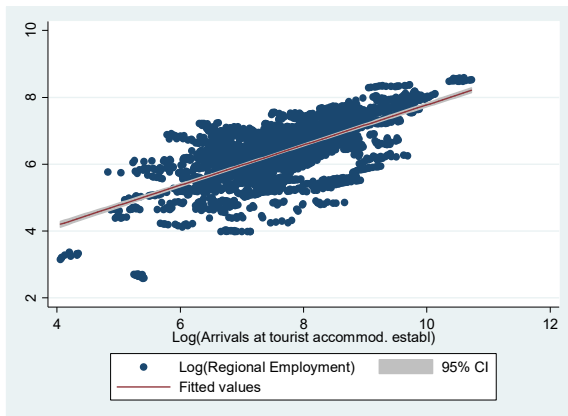
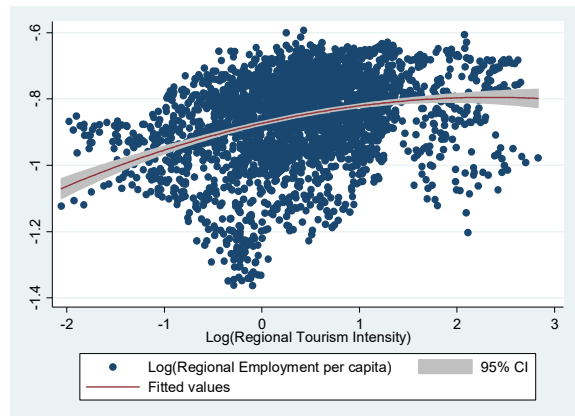


Figure 9. Relationship between employment *per capita* and tourism intensity, EU25, 2000-2018



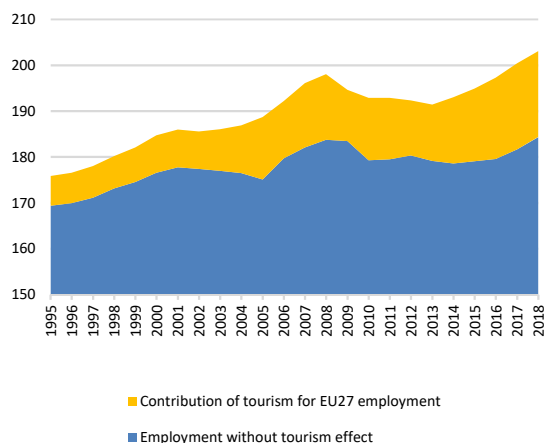
Data refers to NUTS II level (version 2016). Ireland and Lithuania are not included due to the lack of data at NUTS II. Tourism intensity refers to the ratio between the total number of arrivals at tourist accommodation establishments and the resident population.

Source: Own estimations based on EUROSTAT data.

To confirm the causal relationship between tourism flow and employment, several econometric regressions were performed (for more details see section C in Appendix). Results show that, over the period 2000-2018, on average, **every additional 1,000 tourist arrivals are associated with 20 additional jobs in the EU regions**; or an **increase of 10% of tourist arrivals generates, on average, an increase by 0.9% of employment** (for more details see section 8.3.2. in Appendix). In 2008, **tourist arrivals at accommodation establishments generated, directly and indirectly along the value chain, about 19 million jobs, representing on average 10% of the total active labour force in the EU**. Table 10 displays the evolution of the contribution of tourist arrivals to employment, over the period 1995-2018.

In periods of economic crisis, the relationship between tourist arrivals and employment tends to be lower than the average (Figure 11). For the same volume of tourist arrivals, the **labour market creates 3 times fewer jobs than in other periods**, which represents a decrease of 15% of the average employment in the tourism sector (For more details see section 8.3.2. in Appendix).

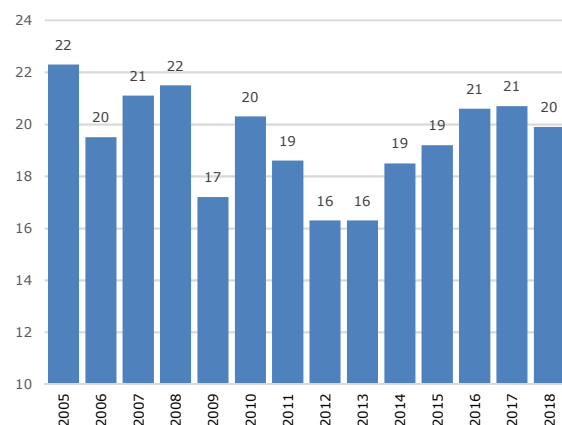
Figure 10. Contribution of tourist flow to employment, EU, 1995-2018 ⁽¹⁾



⁽¹⁾ This figure reports the total volume of employment generated by tourist flows, expressed in Million persons employed.

Source: Own estimations (for more details see 8.3.3. in Appendix).

Figure 11. Tourist-employment relationship by year, EU ⁽²⁾



⁽²⁾ This figure reports the number of jobs associated to every 1,000 tourist arrivals at accommodation establishments by year. Only coefficients concerning the years of 2009, 2012 and 2013 are statistically different from all remaining years.

Source: Own estimations (for more details see Section 8.3.3. in Appendix).

The contribution of the tourism sector to regional employment (Figure 12) seems to be particularly important for some regions located in Greece (Notio Aigaiο - EL42; Ionia Nisia - EL62; Kriti - EL43), Croatia (Jadranska Hrvatska - HR03), Italy (Provincia Autonoma di Bolzano/Bozen - ITH1; Valle d'Aosta/Vallée d'Aoste - ITC2), Austria (Tirol - AT33; Salzburg - AT32), Spain (Canarias - ES70; Illes Balears - ES53) and Portugal (Algarve - PT15), where it represents more than 30% of the total employment in the region.

Figure 12. Contribution of the tourism sector to employment in 2017, EU, NUTS II level (version 2016) (% total employment)

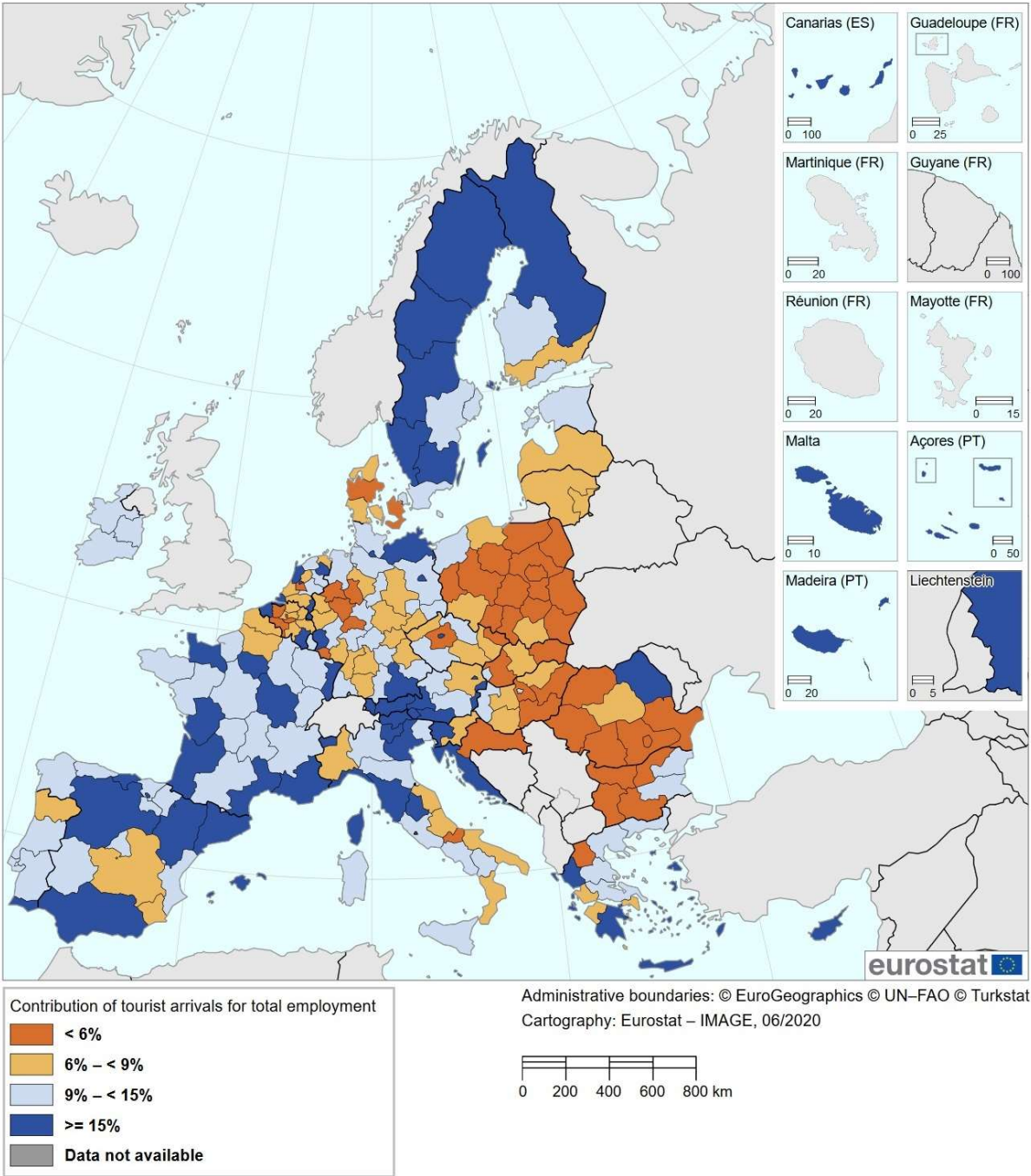


Figure refers to the net overall effect of tourist arrivals at accommodation establishments along the value chain (direct, indirect, induced and catalytic effects in related activities)

Source: Own estimation.

The high dependence of some local-based economies on the tourism sector makes them particularly vulnerable to sector-specific shocks. Indeed, regions with a higher regional vulnerability to tourism index, which takes into account seasonality and tourism intensity, are also those where employment generated by tourism activities is most important (Table 2). This positive correlation allows identification of those regions which might be the most negatively affected by the COVID-19 outbreak.

Table 2. Contribution of accommodation sector (direct effect) and tourism sector (net overall effect) to employment, by category of the regional vulnerability to tourism index, EU, 2018

Regional vulnerability to tourism index [3]	% Total employment	
	Accommodation sector [1] (Direct effect)	Tourism industries [2] (Net overall effect)
Low [1-3]	0.6%	6.3%
Medium [4-7]	1.3%	11.1%
High [8-11]	1.5%	13.0%
Very High [12-16]	2.9%	18.1%

Source: Own estimation based on [1] EUROSTAT data for 2017; [2] results of econometric estimations for 2018; [3] adapted from **Batista e Silva et al.** (2018), where conversion of index from NUTS III level (original data) to NUTS II was done using population as weight.

Furthermore, taking into account a starting point of 2,4 million persons employed in accommodation services (direct employment reported in Table 7 in Appendix) and a net overall effect of 19 million jobs along the value chains, our finding displayed an average multiplier effect of type 3 ⁽¹⁷⁾ equal to 7.7, in line with **InterVISTAS** (2015) results, who found a similar multiplier effect equal to 7 for EU airport activity. In the present study, our multiplier indicates that each job in accommodations services can generate about 6.7 additional jobs along the European value chain.

⁽¹⁷⁾ A multiplier type 3 includes the indirect, induced and catalytic effects. It is estimated using the following formula: (direct + indirect + induced + catalytic effects) / direct effect, where the net overall effect corresponds to the sum of the direct, indirect, induced and catalytic effects.

5 COVID-19 and regional employment: a scenario based-analysis

The socio-economic consequences of the COVID-19 public health crisis are different from the global economic recession 2008/2009, which started in the financial sector. To stop the disease spread and dissemination, EU countries adopted extreme measures as of Spring 2020, such as lockdown and travel restrictions. Such policy actions affect both demand and supply sides of the value chain, leading to an economic contraction, job losses and income reduction. The public health crisis is has become an economic crisis. The drastic reduction on demand for goods and services due to the lockdown, closure of shops, hotels, restaurants and other related services are generating a significant increase of unemployment and firm’s bankruptcy, affecting all European regions.

However, despite the singularity of the COVID-19 crisis, some lessons from the previous economic crisis could be drawn to better understand how the labor market reacted to the contraction of GDP and who are the workers most affected.

5.1 What do we know from the effect of the previous economic crisis on employment?

An economic crisis is usually associated with a contraction of demand. Companies registering a decline in the demand for their goods/services tend to react by adjusting their production factors, namely investing less and reducing the level of their labour force.

The last economic crisis 2008/2009 shows us that the observed contraction of GDP had not been matched by an equivalent fall in employment (**Hijman, 2009**). For instance, a 5.5% decrease in GDP in 2009 (Figure 13) is associated with a 1.8% decrease of employment in the same period (Figure 14). Furthermore, the negative effect on employment appeared with a certain time-lag. While the annual GDP started to fall in 2008 (Figure 13), the reduction of employment level was only observed in 2009 (Figure 14). Concerning the recovery period, the EU economy only reached the same level of GDP per capita of 2008 in 2016, i.e. 8 years after the start of the crisis (Figure 15), whereas the same employment level was only attained in 2017 (Figure 16). These trends show that labour market tends to react with a year’s delay, both in terms of contraction and recovery. On the one hand, in times of economic crisis, entities try to protect their human capital as much as possible, avoiding firing employees. (**Hijman, 2009**). On the other hand, restoring confidence among entrepreneurs, even in times of recovery, also takes time. Therefore, perhaps the changes observed in the labour market are only visible when the market shows greater growth stability.

Figure 13. Real growth rate of GDP per capita, EU, 2001-2019 ⁽¹⁾

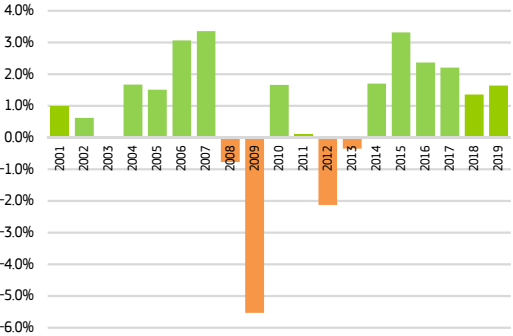
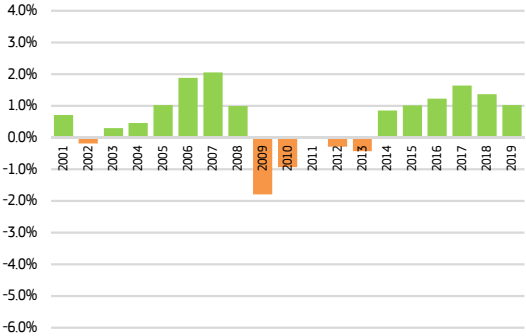


Figure 14. Growth rate of employment, EU, 2001-2019



⁽¹⁾ Real growth rate of GDP per capita refers to percentage changes between two periods, adjusted for inflation

Source: Own estimation based on EUROSTAT.

Figure 15. Differences (% changes) to GDP per capita in 2008, EU ⁽¹⁾

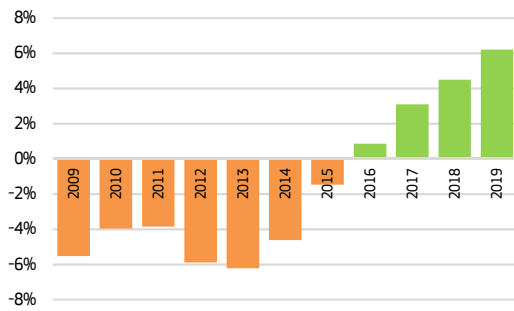
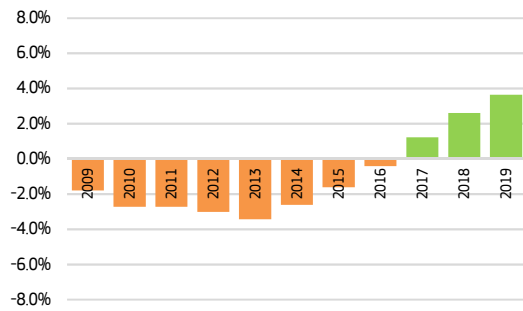


Figure 16. Differences (changes %) to employment level in 2008, EU ⁽¹⁾

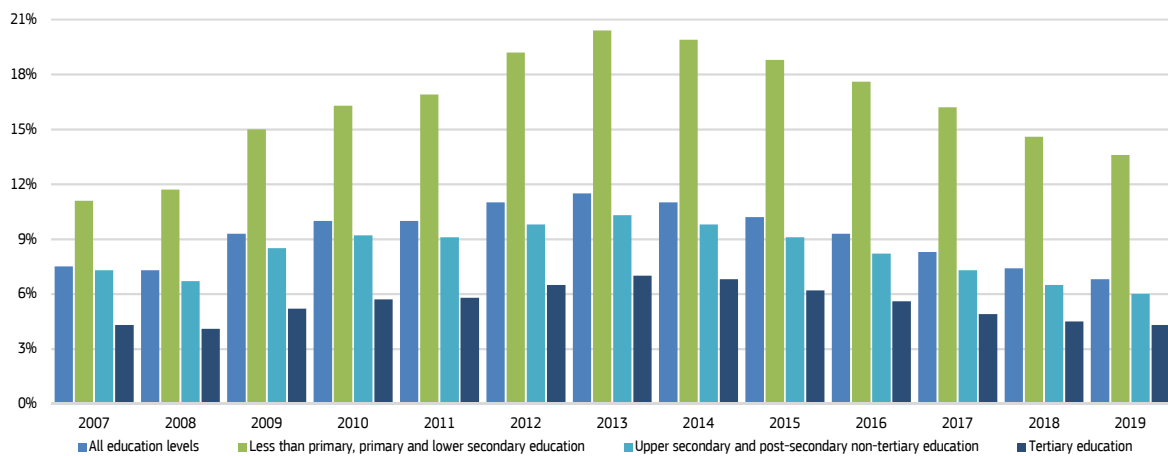


⁽¹⁾ Values refer to relative changes of GDP per capita or employment level compared to the reference value in 2008.

Source: Own estimations based on EUROSTAT.

Regarding the EU human resources profile, people with a lower level of education were also the most seriously affected by the financial crisis 2008/2009 (**Hijman, 2009**) and even today the level of their unemployment rate is twice the EU average (Figure 17). After 2008, the share of part-time employment showed a growth trend (Figure 18), whereas temporary employment registered a slight decrease (Figure 19). This could suggest that in periods of economic crisis, employers tend not to renew their workers' temporary contracts and prefer to negotiate part-time employment in order to avoid laying off even more people (**Hijman, 2009**). Concretely, employees in accommodation and food service activities are particularly affected by the precariousness of their jobs. This is also related to the seasonality of the sector. The shares of part-time (Figure 18) and temporary (Figure 19) employment are higher in accommodation and food service activities ⁽¹⁸⁾, and their intensities are even greater today than compared to 2008 figures.

Figure 17. Evolution of unemployment by education level, EU, 2008-2019



Source: Own estimation based on EUROSTAT data.

⁽¹⁸⁾ Such industrial dynamics and concentration explain the differences regarding the level of employment vulnerability across European countries.

Figure 18. Share of part-time employment: positioning of accommodation and food service activities, EU, 2008-2019

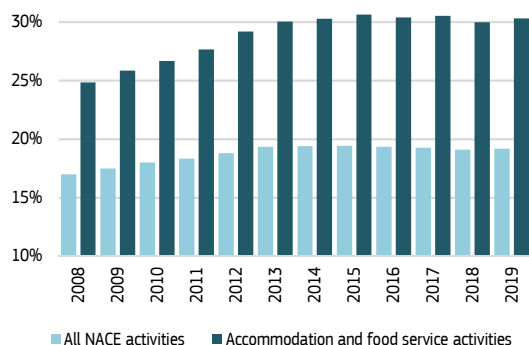
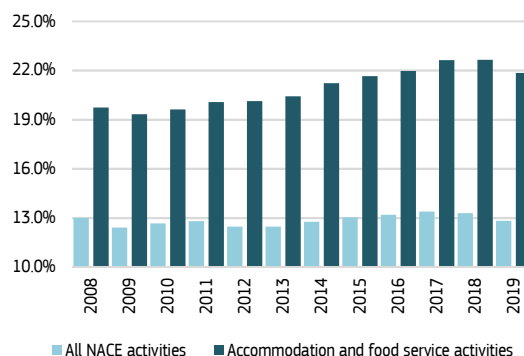


Figure 19. Share of temporary employment: positioning of accommodation and food service activities, EU, 2008-2019

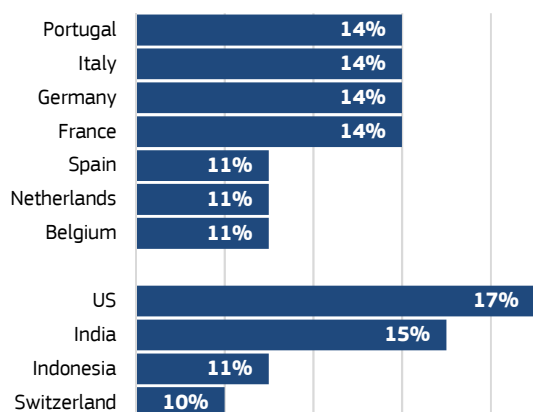


Source: Own estimations based on EUROSTAT data.

5.2 Changes in consumer, traveller and entrepreneur behaviour in times of COVID-19

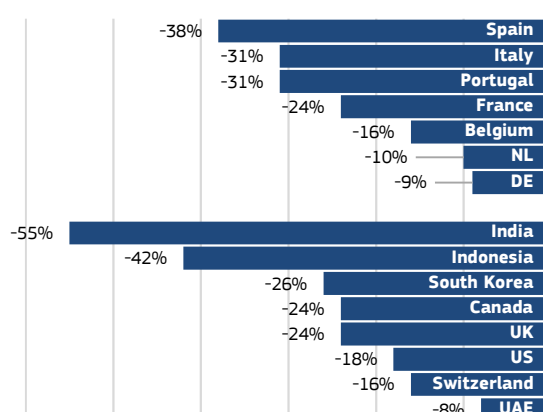
Recent surveys and trend analysis ⁽¹⁹⁾ have showed that the COVID-19 health crisis is affecting consumer patterns. Changes are observed in the short-term (e.g. during lock-down and confinement online-sales and services increased significantly – **Global Data, 2020**) and it is also expected that they will persist in the medium term. For instance, some citizens are waiting a vaccine or treatment before regularly returning to out-of-home activities (Figure 20). Expectations regarding international travel in the post-COVID-19 crisis are also likely to be lower, in comparison with the pre-crisis (Figure 21).

Figure 20. Waiting for a vaccine or treatment before regularly return to stores, restaurants, and other out-of-home activities (% respondents) ⁽²⁰⁾



Source: McKinsey & Company (2020a, e, f, g, h, i, k, l, m, n and p).

Figure 21. Expectations for consumer behaviour after COVID-19, relative to pre-crisis, regarding international travel ⁽²¹⁾



Source: McKinsey & Company (2020a, b, c, d, e, f, g, i, j, k, m, n, o and p).

⁽¹⁹⁾ For more details see section II in Appendix.

⁽²⁰⁾ Period of the survey: 21–24/5/2020 (Belgium, France, Germany, Italy, Portugal, Spain, Switzerland and the Netherlands), 18–24/05/2020 (United States), 22–25/05/2020 (India) and 20–22/05/2020 (Indonesia). Number of respondents: 604 (Belgium); 1,011 (France); 1,008 (Germany); 1,000 (Italy); 607 (Netherlands); 610 (Portugal); 1,010 (Spain); 1,975 (United States); 612 (Switzerland); 614 (India); 715 (Indonesia). Sampled and weighted to match country's general population 18+ years.

⁽²¹⁾ Period of the survey: 21–24/5/2020 (Belgium, Canada, Denmark, France, Germany, Italy, Portugal, Spain, Switzerland and the Netherlands), 5–11/05/2020 (China), 1–3/05/2020 (South Korea), 30/04–3/05/2020 (United Kingdom) and 18–24/05/2020 (United States). Number of respondents: 604 (Belgium); 606 (Denmark); 1,011 (France); 1,008 (Germany); 1,000 (Italy); 607 (Netherlands); 610 (Portugal); 1,010 (Spain); 1,257 (China, including Hubei province); 600 (South Korea); 1,975 (United States); 1,003 (United Kingdom); 1,080 (Canada); 612 (Switzerland). Sampled and weighted to match country's general population 18+ years.

For the summer holidays 2020 and following months of 2020, behavioural changes of travellers are expected in the willingness to travel and in destination preferences. Recent surveys revealed that there is **still willingness to travel after the COVID-19 Spring confinement (EY, 2020b; DNA, 2020)**. However, when choosing the holiday destination, **low tourist density and sanitary conditions are the main attributes** (Figure 22) a destination needs to have. In avoiding overcrowded places, tourists show preferences for destinations with outdoor activities and contact with the nature (**DNA, 2020; Interface Tourism, 2020c; Gursoy et al., 2020**), away from big cities (**VVF, 2020**). Price seems not to be the main criterion affecting the selection of destination place (Figure 22), at least for French citizens. **Preference will go to national destinations** although there is still a willingness to travel outside the home country for holidays (**EY, 2020b; DNA, 2020; Interface Tourism, 2020c**). Outside the home country, there is a higher preference for destinations less affected by COVID-19 (**HES-SO, 2020; Interface Tourism, 2020c**). Changes in the duration of trips are also expected, namely making them shorter ⁽²²⁾ or with the same duration but divided into several small trips (Figure 23). The household budgets allocated to holidays are also likely to be lower (**Azurite Consulting 2020; Interface Tourism, 2020a and 2020c; Roland Berger, 2020**), due to uncertainty and economic instability.

Figure 22. Preferences when choosing the destination (main attributes) post- COVID-19 lockdown ⁽¹⁾

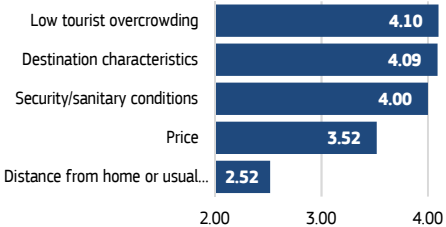
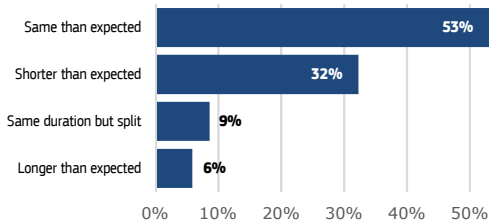


Figure 23. Changes in duration of vacation post-COVID-19 lockdown ⁽¹⁾



⁽¹⁾ Data for Spain. Period of the survey: 23-27/04/2020. Number of respondents: 1,028.

Source: DNA (2020).

Business travel is, however, expected to recover more slowly. For instance, in France (top 3 destination in EU for association meetings – **Statista, 2020b**), the MICE (meetings, incentives, conferences, and exhibitions) market is postponing most of its events to October 2020 and even after April 2021 (**Interface Tourism, 2020b**). Even if there are preferences for postponement, on average about 30% of the events have been cancelled, according to the case study of French MICE agencies (**Interface Tourism, 2020b**). Therefore, without a second wave of the disease during the summer, it is expected that business tourism will restart in the last quarter of 2020. However, as business travellers are usually more affected by decreases in the GDP than leisure travellers (**Santos and Cincera, 2018**), the current economic crisis generated by the Spring 2020 lockdown and the closure of some establishments (to prevent the spread of diseases) will also make it more difficult to re-establish business tourism. Expenditure on travel (included in sales promotion/marketing expenses) is usually affected by cost reductions when companies observe a fall in their demand for goods and services. Recent surveys (e.g. **Azurite Consulting, 2020; Deloitte, 2020**) already displayed this trend, with companies cutting costs associated with marketing and sales-related activities. Furthermore, the intensive use of digitalisation for video-conferences during lockdown can also bring about changes in the business model and customer relationship. Surveys (e.g. **Azurite Consulting, 2020**) show that business leaders are re-considering the need for traveling or in-person meetings.

⁽²²⁾ During the 2008/2009 economic crisis, we also observed a decrease in the average length of stay of 2.4%; since 2010, tourists' preferences for shorter trips have also been observed (**Figure 30**).

5.3 Estimating the effect of COVID-19 on regional employment as the result of tourism slowdown

5.3.1. State of play

The effect of the COVID-19 outbreak on employment is not expected to have the same dimension as the effect on company turnover or GDP, as showed in section 5.1. Dismissing staff with a permanent contract also has its costs - e.g. with indemnity, which is usually proportional to the number of years in the companies ⁽²³⁾. Furthermore, as personnel/staff in the tourism sector is very relevant (it is one of the main attributes for customer satisfaction - **Akan, 1995; Dortyol et al., 2014**), companies will try as much as they can to protect and conserve their human capital.

Even with the current national ⁽²⁴⁾ and European ⁽²⁵⁾ measures, **the immediate effect of the health crisis on employment will be on the non-renewal of temporary contracts (Deloitte, 2020)** or not hiring seasonal employees, which particularly affects the tourism sector, as employees with a fixed term contract represent more than 20% of its labour force (Figure 19).

On the time of the present study (15 June 2020), mobility and traveling between countries are limited. In April and May 2020, 100% of all worldwide destinations introduced travel restrictions in response to the COVID-19 pandemic, through the closure of borders for tourists and suspension of international flights (**UNWTO, 2020**). Mobility and traveling limitations will persist as long as there is a risk of a second wave of the disease.

Sanitary and health measures in accommodation establishments to reduce social proximity and ensure health security include essentially the reduction of the number of people in common areas (bars, restaurants, pools, gyms, private beaches), cleaning/disinfection of spaces several times a day, the mandatory use of personal protective equipment (PPE) by staff and tourists, prohibition of buffets, among others. If the occupancy rate of bedrooms in accommodation establishments will not be restricted to a maximum ⁽²⁶⁾, these measures *per se* will not reduce the number of tourist arrivals. However, a restriction of people in common areas and facilities (pools, leisure activities,...) could lead to a reduction of extra-consumption as well as to a reduction in tourist arrivals, and therefore to a reduction of accommodations establishments revenues. In addition, since tourists are not able to enjoy the whole experience during their stay, this can also negatively influence the desire to travel. Changes in tourism demand are more associated with changes in destination preferences, now strongly national (**EY, 2020b; Roland Berger, 2020**) and away from the crowds (**DNA, 2020**). There is also a clear preference for tourist activities that allow enjoyment of nature and the outdoors (**DNA, 2020**). Furthermore, private vehicle is the preferred transport mode for holidays (**EY, 2020b; DNA, 2020**). Approximately 35% of people are waiting for a vaccine before taking an international flight (**Azurite Consulting, 2020**).

As a result of government measures to stop disease spread, such as mobility and travel restrictions, confinement and the imposed closure of accommodation establishments, tourist arrivals dropped 57% in 2020 March ⁽²⁷⁾ and 90% in April (**UNWTO, 2020**). According to **UNWTO (2020)**, scenarios for 2020 point to declines of international tourist arrivals between 58% to 78%.

5.3.2. Describing scenarios

After the Spring 2020 lockdown or confinement, and if the **conditions for travelling** are met, tourist behaviour and choice are affected by psychological and economic factors (Figure 24). **Psychological factors**, related to the fear of contamination as long as there is no vaccine or treatment, impact on the willingness to travel and on the conditions of and preference for holiday destinations. **Economic factors** are

⁽²³⁾ For example, severance pay in Poland and Denmark can represent 1 to 3 months' salary depending on years of service and its status.

⁽²⁴⁾ Such as the temporary *layoff* schemes, where employees who are temporarily laid-off receive unemployment benefits.

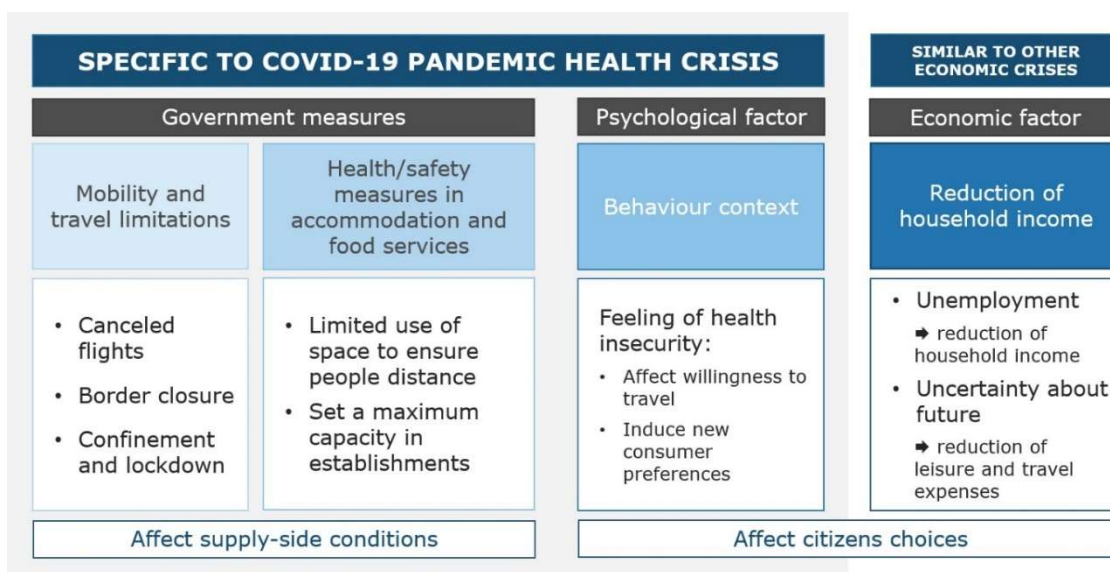
⁽²⁵⁾ For instance, specific measures to provide exceptional flexibility for the use of the European Structural and Investments Funds in response to the COVID-19 outbreak (For more details see Regulation (EU) 2020/558 of the European Parliament and of the Council of 23 April 2020 amending Regulations (EU) No 1301/2013 and (EU) No 1303/2013.

⁽²⁶⁾ Currently, the different EU member states are at different stages of the outbreak and they still do not know in which stage of the de-escalation they will be in a few weeks, so it is not known whether the accommodation occupation limitation will apply or not.

⁽²⁷⁾ This is also the average value registered by EUROSTAT in March 2020, based on data from Denmark, Spain, Finland and Sweden.

associated with the reduction of household income, as a consequence of unemployment or the reduction of working hours.

Figure 24. Drivers of change considered for the scenario- based analysis



Source: Own elaboration.

Based on the results of the recent surveys conducted by consulting companies to citizens and actors in the tourism sector (Table 12 in Appendix), three possible scenarios for the next coming months have been elaborated, as illustrated below (from June to December 2020), based on changes in consumer behaviour (See also the methodological notes in Appendix 8).

a) Confidence to travel scenario: Extended hot long summer

Across the EU, MSs have opened borders quite rapidly to other EU MSs, be it under different conditions and restrictions. International travel from outside EU is also taking off again. Consumer trust in travelling is prudently increasing, and the destination preference patterns have changed to less crowded and nature-oriented destinations, although moderately. In a few places, isolated concentrations of new cases appear but are well-managed by relevant authorities and with a minor effect on touristic activities. The touristic provision and the capacity of tourist destinations are not significantly affected by government safety measures and most companies have survived thanks to the limited duration of the crisis and accompanying government support measures. Alternative tourist destinations have reached close to full occupation during the touristic high season. The touristic season is also extended due to tourists postponing their holidays to less crowded periods of the year, as well as thanks to a warm and extended summer.

b) Fear to travel scenario: Escape to wherever

After the gradual lifting of lockdown and safety measures and the opening of borders, increasing tourism from within the EU and beyond lead to several semi-controlled outbreaks across the EU. Tourist travel is still possible, and most borders stay open, but consumer confidence in safe travel drops substantially. Where travels still take place, preference for domestic travel increases, as well as for safer and less crowded alternative destinations, although increasing safety measures limit the capacity of alternative destinations. Companies offering touristic attractions, leisure and business travel and accommodation start suffering from the ongoing crisis, with a substantial number of businesses leaving the sector, thus lowering total supply. Consumers spread their holidays over a longer period of time, and weather conditions have become less relevant than the ability to escape at some point at any time of the year.

c) Second wave scenario: Islands of tourism

With the arrival of summer and the take-off of tourism across and beyond the EU, few outbreaks appear that at first sight seem under control but spread further in a couple of weeks across different parts of the European territory. New safety and lockdown measures are combined gradual closure of most borders between EU MSs and with international destinations. Where travel is still possible across borders, consumer trust drops dramatically, and the touristic season becomes a disaster for merely all destinations. Where allowed, domestic travel still holds on, be it under increased safety and mobility restrictions, leading to limited capacity on all destinations. These isolated islands of tourism go on over a longer period and gradually grow in number and size as the lockdown measures are lifted, but the overall fear for a next outbreak keeps the trust in travel from taking off again. Companies all over Europe start going bankrupt or decide themselves to go out of business due to the duration and intensity of the crisis, leading to lower offer, more sector unemployment and lower income.

5.3.3. Estimated tourist flows and jobs at risk

The three scenarios forecast a drop of tourist arrivals between 38% and 68% in EU for the entire year 2020 (Table 3), in comparison with the value registered in 2019 ⁽²⁸⁾. Domestic tourist arrivals at accommodation establishments are foreseen to fall between 30% and 61%, whereas foreign tourist arrivals are expected to drop between 50% and 79%.

Table 3. Estimated changes in tourism arrivals, EU, 2020, in comparison with 2019, by scenario

	Confidence to travel scenario	Fear to travel scenario	Second wave scenario
Domestic tourist	-30%	-46%	-61%
International tourist	-50%	-61%	-79%
Intra-EU tourist	-44%	-60%	-73%
Extra-EU tourist	-57%	-62%	-88%
Average	-38%	-52%	-68%

Source: Based on EUROSTAT data for the January, February and March. Own estimations from April to December.

Faced with a more reduced number of tourists, the current and usual level of employment could be not sustainable for companies operating and/or dependent on tourism-related activities. Therefore, between 6.6 and 11.7 million jobs (Table 4), depending on the scenarios, could be at risk of reduction in working hours (and consequent reduction of compensations) or permanent jobs losses. These estimated effects are in line with the results of other studies. For instance, a first EC communication²⁹ estimated loss of 6 Million job in tourism sector as the results of COVID-19 and **Statista** (2020a) predicted an employment loss of 13 millions of jobs (travel and tourism industry) in Europe for 2020.

Furthermore, the slowdown of tourism-related activities can also represent a loss of opportunity for temporary/seasonal workers, who are unemployed or who supplement annual income with summer jobs. These jobs at risk represent between 3.2% and 5.6% of the total active population of EU.

⁽²⁸⁾ For more details see section D of methodological notes in Appendix.

⁽²⁹⁾ See section "Impact on EU tourism" on https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/travel-and-transportation-during-coronavirus-pandemic/eu-helps-reboot-europes-tourism_en#document (Accessed on 14 June 2020)

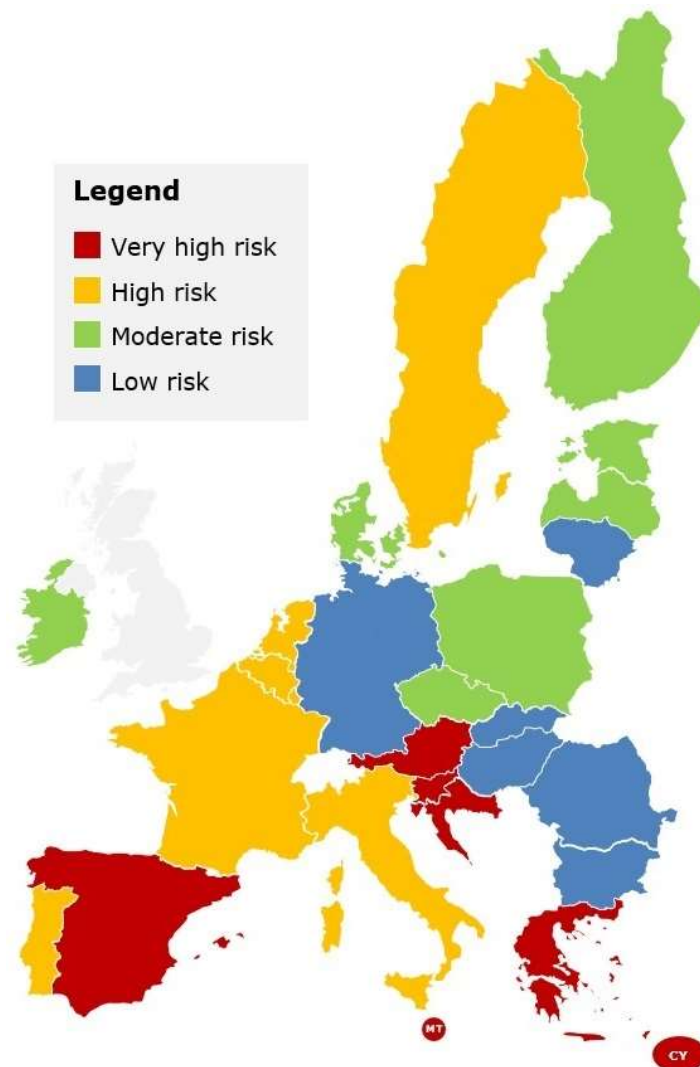
Table 4. Estimated number of jobs at risk in the EU economy as a result of a drop in tourist arrivals in 2020, by scenario.

	Confidence to travel scenario	Fear to travel scenario	Second wave scenario
Jobs at risk	6,6 Million	9 Million	11,7 Million
% active population	3.2%	4.3%	5.6%

Source: Own estimations.

Croatia, Cyprus, Malta, Greece, Slovenia, Spain and Austria (Figure 25) are the countries most likely to have jobs at risk as a result of the slowdown in tourism, taking into account the contribution of the tourism sector to national employment, the dependence on international tourists (Figure 25) and the share of temporary employees.

Figure 25. Intensity of jobs at risk on tourism sector index, EU



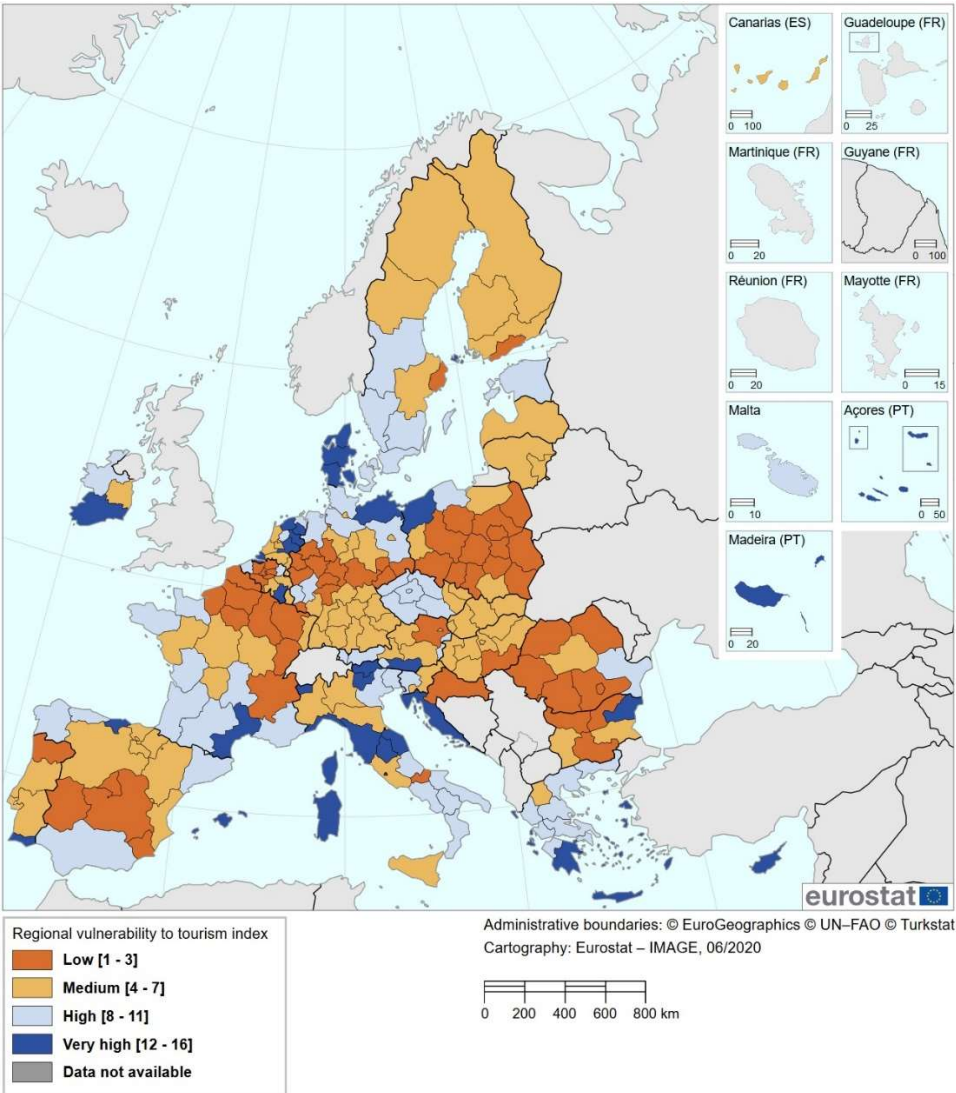
The index includes the contribution of the tourism sector for national employment, the dependence on international tourists and the share of temporary employees in accommodations, food and beverage services.

Source: Own estimations.

At regional level, probably the most affected territories might be those places with a usually high tourism concentration in Summer, or urban tourism destinations, as the results of recent surveys (Table 12 in Appendix) showed new preferences for this Summer: low tourist density destinations, outdoor activities and away from big cities. For some rural areas, the COVID-19 crisis could even be an opportunity to boost their local economy, not only because of the above features but also based on a more sustainable and eco-inclusive consumer behaviour ⁽³⁰⁾. Regions less affected by COVID-19 are also more attractive for tourists (**HES-SO, 2020**), because they transmit an image of a safer place for tourists. Regions with a strong tourism seasonality, which is correlated with a higher share of temporary employees, could also have a higher likelihood to jobs at risk.

In section 4 we showed that regions with a higher regional vulnerability to tourism index, which includes the seasonality and tourism intensity, are also those where employment generated by tourism sector is the most important. Therefore, this index (Figure 26) helps to identify which EU regions have a higher likelihood to have jobs at risk as the result of COVID-19.

Figure 26. Regional vulnerability to tourism per NUTS 2 level, EU, 2016



Conversion of index from NUTS 3 level (original data) to NUTS 2 using population as weight.

Source: Adapted from **Batista e Silva et al.** (2018).

⁽³⁰⁾ According to **Global Data** (2020), the current health crisis raised the consumer awareness on the negative implications of globalisation (e.g. environmental, social, and governance issues).

6 Policy recommendations

The analysis points at a great number of jobs at risk in the EU, whatever scenario will materialise. Obviously, the duration of the crisis and its impacts on touristic activities, as well as the presence of accompanying measures will have a considerable impact on the actual number of jobs at risk. Also, as in earlier crises, recovery of employment up to the level of before the crisis, is expected to take many years. Here again, much depends on the accompanying policies, in different fields and governance levels to support the touristic sector, and to increase its resilience in facing future crises of similar or different nature. Building on these findings, the following policy recommendations can be considered (summarized in Table 5).

Table 5. Policy actions by phases

Dimension	Short-term	Medium-term	Long-term
Maximise the use of existing policy initiatives	<ul style="list-style-type: none"> - EC Communication on Tourism and Transport in 2020 and beyond - Guidance for resumption of tourism service - Solvency Support Instrument (Pillar 2 of the EC Recovery Plan) - REACT-EU - RE-OPEN platform 	<ul style="list-style-type: none"> - Recovery and Resilience Facility (Pillar 1 of the EC Recovery Plan) - Strategic Investment Facility - Upgraded InvestEU, Just Transition Fund, EAFRD, and upgraded Cohesion policy programmes - National, regional, local support programmes 	<ul style="list-style-type: none"> - Recovery and Resilience Facility (Pillar 1 of the EC Recovery Plan) - Strategic Investment Facility - Upgraded InvestEU, Just Transition Fund, EAFRD, and upgraded Cohesion policy programmes - National, regional, local support programmes
Implications of changing consumer preferences for the tourism R&I agenda	<ul style="list-style-type: none"> - Innovative approaches to safety and healthy tourism - Increasing role for consumer preferences and of behavioural science in sustainable tourism 	<ul style="list-style-type: none"> - Novel forms of alternative and sustainable tourism, near-by tourism, and remote tourism - Match tourism better with the UN SDGs 	<ul style="list-style-type: none"> - Increase resilience of tourism in facing possible future pandemics
Increasing resilience through diversification	<ul style="list-style-type: none"> - Build even more on unique European territorial and cultural diversity 	<ul style="list-style-type: none"> - Connect better seemingly disconnected value chains (digital content, industrial tourism,...) 	<ul style="list-style-type: none"> - Diversifying places highly dependent on tourism - Strategic role for Sustainable Smart Specialisation Strategies (S4)
Implications for R&I governance	<ul style="list-style-type: none"> - Explore how S4 can be implemented using funding synergies - Coordinated communication and training funding options - Connect better communities of actors at EU, national, regional, local level 	<ul style="list-style-type: none"> - Build local capacity to understand and optimise the potential funding and financing sources - Optimise synergies between ERDF and EAFRD - Increase citizens' participation in localised solutions for tourism 	<ul style="list-style-type: none"> - Efficient multi-level governance for sustainable tourism

Source: Own estimation.

6.1 Make optimal use of policy initiatives already in place

A large number of initiatives is already in place, mainly focusing on the supply side (tourism industry), including the following:

- The EC Communication on Tourism and Transport in 2020 ⁽³¹⁾ and beyond highlights a number of short term solutions, including ways to address the liquidity crunch, voluntary vouchers, measures to save jobs [through the ESF and the temporary SURE ⁽³²⁾] and improve skills (e.g. upskilling through national and EU funds, and through sectoral collaboration on skills), and the promotion of local tourism. The EC also

⁽³¹⁾ COM(2020) 550 final

⁽³²⁾ SURE: Support to mitigate Unemployment Risks in an Emergency

provides guidance for the progressive resumption of tourism services and for health protocols in hospitality establishments ⁽³³⁾.

- The EC Recovery Plan ⁽³⁴⁾ can support the tourism sector through the new Recovery and Resilience Facility, as well as the REACT-EU to support workers and SMEs across sectors, including in tourism and culture (Pillar 1 of the Recovery Plan).
- Also Pillar 2 offers a wide range of opportunities for the touristic sector, including the Solvency Support Instrument for urgent support to companies, and a Strategic Investment Facility strengthening the EU's resilience and strategic autonomy across key technologies and value chains.
- Several existing EU programmes are also being upgraded, such as InvestEU, the Just Transition Fund, the European Agricultural Fund for Rural Development, as well as the Cohesion policy programmes.
- Also, at national, regional and city level, a number of support programmes are already in place, directed to the tourism sector both workers and companies ⁽³⁵⁾.

An example of a demand-oriented initiative is the RE-OPEN platform, delivering traveller information on travel restrictions, and contributing to increasing travel confidence.

6.2 Implications of changing consumer preferences for the tourism R&I agenda:

The analysis revealed important changes in consumer preferences, opening up new opportunities for R&I in tourism:

- Shifting consumer preferences towards safety and healthy environments are expected to remain for a long time and will require innovative approaches to tourism that take into account these aspects. Even in case a vaccine becomes available, tourism should *increase its resilience* in facing possible *future pandemics*.
- Consumer preferences also shifted prominently from mass tourism towards *less crowded touristic destinations*, and in particular *rural and nature* tourism. Novel forms of alternative and more sustainable tourism, as well as wider territorial spread of tourists can accommodate these preferences and at the same time help address a number of adverse effects of mass tourism (in cities, touristic villages, famous natural destinations,...), even those not related to the covid-19 crisis. It can also contribute to local development in less advanced or remote places, and even to reversing population decline building on the new momentum for telework opportunities. In line with changing preferences of tourists, the tourism crisis is also an opportunity to better match the sector with the Sustainable Development Goals, building on the efforts of the UN. Tourism has been included as targets in Goals 8 (inclusive and sustainable economic growth), 12 (sustainable consumption and production) and 14 (sustainable use of oceans and marine resources), but has the potential to contribute to all goals ⁽³⁶⁾.
- The high *dependence* of many touristic destinations *on air transport* is a mayor risk factor, as shown by the current covid-19 crisis, but also by the air travel disruption after the 2010 Eyjafjallajökull eruption. Development of a stronger near-by touristic offer can both decrease the air travel dependency and the carbon footprint of transport related to tourism. E.g. it can give more impetus to the European R&I efforts on other modes of transport, including sustainable public transport (if covid-19 proof), electric cars, etc.
- More generally, the role of changing consumer preferences, and of behavioural science in general in tourism, is of increasing importance, and can play an important role in a future R&I agenda. This aspect is also important to better understand consumer behaviour with regard to increasing sustainability in tourism, and the implications of the Green Deal for the touristic sector.
- Finally, new preferences and alternative touristic offer will also require *new skills for tourism, and create new opportunities for lower-skilled workers*.

⁽³³⁾ C(2020) 3251 final

⁽³⁴⁾ COM(2020) 442

⁽³⁵⁾ Overviews of support measures can be found e.g. at OECD (national measures, [tourism-related](#) and a [general policy response monitor](#)) and EURADA (responses of regional development agencies).

⁽³⁶⁾ <http://tourism4sdqs.org/>

6.3 Increasing resilience through diversification

The tourism sector is more vulnerable than other sectors to external shocks like a pandemic, as there are often no alternatives. Increasing resilience to such shocks is key for territories with high employment in tourism. The current crisis and the changing behaviour of tourist hold opportunities for diversification in a number of ways, as a way to increase resilience.

Revising the current tourism ecosystem with increasing diversity and the role of places

The potential of tourism can build even more than before on the unique European territorial and cultural diversity. At the same time the crisis can give a new impetus to sustainability and digitalisation in tourism. With changing customer preferences, this means that new actors (new modes of transport, new forms of sustainable tourism,...) and new business models might come into play, and that the tourism eco-system as we know it needs revision. One of the actors with potentially increasing importance are local public and private actors, through the development of locally diversified and customised touristic solutions.

Diversifying through connecting value chains

Another avenue for increasing resilience may lie in connecting seemingly disconnected value chains. One example consists of providing more digital content and developing digital spin-offs of touristic attractions, such as the development of online entertainment ⁽³⁷⁾ that includes cultural heritage. Another example includes the development of touristic activities from seemingly unrelated activities, as is the case in industrial tourism ⁽³⁸⁾.

Diversifying places

Increasing resilience of touristic places and their employment can also come from lower dependency on tourism, as the sector tends to be volatile and sensitive to downturns. S3 and even more so S4 (Sustainable Smart Specialisation Strategies) offers a good framework for countries and regions to diversify their economy, and make it less dependent on touristic demand.

6.4 Implications for R&I governance

The above recommendations have several implications for R&I governance, in particular:

- Efficiency gains can also be obtained from optimising the governance of R&I programming and the potential synergies between funding schemes, e.g. closer coordination between ERDF and EAFRD with regard to sustainable rural development in general and sustainable rural tourism specifically, or exploiting the opportunities of the Recovery Plan and the JTF, and exploring how RIS4 implementation can be advanced using synergies.
- Making optimal use of the wide set of support programmes and seeking synergies between them, also requires for territories to build a local capacity to understand and optimise the potential of different funding and financing sources, and how they can contribute to implementing the touristic strategies and S4 in line with SDGs. Also, coordinated communication and training on all these options can optimise efficiency.
- Diversification also requires connecting and aligning actors, places and networks at different governance levels from European to national, regional and local, as well as connecting different 'communities of

⁽³⁷⁾ This idea was for instance developed as part of the RIS3 implementation in Eastern Macedonia and Thrace

⁽³⁸⁾ The region of East Marmara, Turkey, has chosen industrial tourism as one of its RIS3 priorities.

actors'. E.g. actors involved in interregional S3 partnerships, in EIT Innovation Communities, in clusters and Strategic Value Chains, in building the R&I Missions, etc.

- This crisis shows the relevance of citizens' collaboration and participation on new options and solutions for the tourism. The use of social platforms that involve citizens to reinforce inclusiveness and develop a localised touristic offer, combining local strengths and needs with social innovation and technology, could be an opportunity.

7 Conclusions

The world is experiencing an unprecedented situation. The COVID-19 outbreak is the third recognised disease transmitted from animals to humans in only two decades that has resulted in a major epidemic (**Gorbalenya et al., 2020**). The other two were the MERS in 2012 and SARS in 2003. Nevertheless, the singularity of the current situation lies in the spread of the virus, its geographical coverage and the measures implemented by governments to stop its dissemination (lockdown, confinement, closure of shops and hotels, etc.).

The present report has focused on assessing the effect of the slowdown in tourism, as the result of the COVID-19 crisis, on employment in the second semester of 2020. As of May 2020, most of the countries of the EU have started lifting safety measures in preparation for summer holidays.

Tourism is particularly important for some countries and regions of the EU, where its contribution could represent more than 50% of total employment. The months of June to September concentrate about 50% of total tourist arrivals in the EU.

The tourism sector has been greatly affected by the Spring 2020 lockdown and the imposed closure of shops and hotels. Hotels have started to re-open in June, but there are a series of health and sanitary measures they need to meet, since the disease is still out there. On the other hand, many mobility and travel restrictions between countries and regions have been lifted but others are still in effect. Furthermore, the feeling of health insecurity, until there will be a vaccine or treatment, and the reduction of household income, generated by the economic crisis, are also leading to changes in consumers preferences for this summer.

Scenarios, based on changes in consumer behaviour, foresee a decrease of tourist arrivals in EU between 38% and 68% in 2020. This fall in demand is likely not to be in line with the current employment level in tourism industries. Currently, most of the companies have survived thanks to European and National measures (e.g. special lay-off schemes and access to special bank loans or subsidies to support liquidity). In June 2020, the EU member states will progressively open their borders, to allow again citizens' mobility. However, while the disease is still active worldwide, willingness to travel is likely to be affected.

Consequently, between 6.6 and 11.7 million of jobs (Table 4), depending on the scenarios, could be at risk in EU in 2020. Certain countries are and will be more affected than others, and within each country there are also regional differences. Regions with an eco-system strongly dependent on the tourism sector and international tourism market will be the most affected ones. As each region is differently affected by COVID-19, the solution is likely to be local. In addition, changing consumer preferences hold opportunities for more diversified and sustainable forms of tourism, building on Europe's rich territorial and cultural diversity. Smart Specialisation Strategies (S3), as a governance model based for place-based innovation is well suited as a tool for multi-level governance towards more sustainable tourism. Reshaped towards Sustainable Smart Specialisation Strategies (S4), this model could play a key role in the post COVID-19 recovery process.

8 Appendix

8.1 Tourism statistics

Table 6. NACE (rev. 2.0.) classification of activities included in tourism sector

Category	Code	Description	Tourism-related
Land Transport	H4910	Passenger rail transport, interurban	Partially
	H4939	Other passenger land transport n.e.c.	
Water transport	H5010	Sea and coastal passenger water transport	Partially
	H5030	Inland passenger water transport	
Air transport	H5110	Passenger air transport	Mainly
Food and beverage services	I5610	Restaurants and mobile food service activities	Partially
	I5630	Beverage serving activities	
Accommodation services	I5510	Hotels and similar accommodation	Mainly
	I5520	Holiday and other short-stay accommodation	
	I5530	Camping grounds, recreational vehicle parks and trailer parks	
	I5590	Other accommodation	
Rental services	N7711	Renting and leasing of cars and light motor vehicles	Partially
	N7712	Renting and leasing of trucks	
	N7721	Renting and leasing of recreational and sports goods	
Travel agency and tour operators	N7911	Travel agency activities	Mainly
	N7912	Tour operator activities	
Cultural activities	R9004	Operation of arts facilities	Partially
	R9102	Museums activities	
	R9103	Operation of historical sites and buildings and similar visitor attractions	
	R9104	Botanical and zoological gardens and nature reserves activities	
Recreational activities	R9321	Activities of amusement parks and theme parks	Partially

Source: Own elaboration based on **Statistical Commission** (2008).

Table 7. Total (N°) persons employed in mainly-tourism related activities, by industry and country, EU, 2018

Country	Accommodation Services	Travel agency and tour operator activities	Air passenger transport	Total
Austria	122,411	10,539	8,884	141,834
Belgium	24,157	8,863	5,072	38,092
Bulgaria	45,876	6,104	1,872	53,852
Croatia	39,166	6,389	1,094	46,649
Cyprus	21,852	1,817	443	24,112
Czechia	37,666	11,601	2,526	51,793
Denmark	23,488	4,974	4,794	33,256
Estonia	7,254	1,240	140	8,634
Finland	11,859	2,059	6,044	19,962
France	221,120	32,997	62,640	316,757
Germany	597,532	95,631	57,368	750,531
Greece	159,989	20,865	3,584	184,438
Hungary	30,949	4,977	1,378	37,304
Ireland	70,136	4,040	7,323	81,499
Italy	289,137	40,052	19,091	348,280
Latvia	7,669	2,093	1,538	11,300
Lithuania	9,383	2,420	871	12,674
Luxembourg	3,499	560	2,936	6,995
Malta	8,237	1,154	1,676	11,067
Netherlands	89,649	23,724	24,540	137,913
Poland	80,490	16,500	4,510	101,500
Portugal	99,599	11,512	12,795	123,906
Romania	51,682	9,148	4,320	65,150
Slovakia	14,806	2,790	530	18,126
Slovenia	13,099	1,546	658	15,303
Spain	320,215	51,837	31,249	403,301
Sweden	55,764	8,597	6,737	71,098
Total EU	2,456,684	384,028	274,613	3,115,325

Mainly tourism-related activities include accommodation services (I551, I552, I553 and I559), travel agency and tour operator activities (N7911 and N7912) and air passenger transport (H5110). Value at country level could be underestimated due to the lack of data for extrapolation. When value was missing for 2018, extrapolation was done based on the average of the growth rate trends of the two previous year. If any information was available in EUROSTAT we used as proxy the number of persons employed by NACE code from ORBIS. ORBIS reports the accounting data, however, all entities are listed in ORBIS and not all reported information about this variable.

Source: Own estimation based on EUROSTAT and ORBIS.

Table 8. Total (N°) persons employed in partially-tourism related activities, by sector and country, EU, 2018

Country	Land and water passengers transport	Food and beverage services	Rental services	Museums and other cultural activities	Amusement parks and theme parks	Total
Austria	18,410	182,565	3,113	11,380	733	216,202
Belgium	43,794	141,567	3,763	14,906	1,477	205,508
Bulgaria	33,384	97,917	2,992	6,278	1,422	141,993
Croatia	13,183	64,061	2,656	7,821	212	87,932
Cyprus	1,570	25,881	936	533	n/a	28,920
Czechia	9,764	125,293	2,315	15,636	731	153,739
Denmark	21,531	98,970	2,204	14,752	2,478	139,936
Estonia	3,838	17,123	978	1,680	216	23,835
Finland	20,106	52,729	1,748	11,292	1,195	87,070
France	203,944	696,723	40,381	70,438	19,513	1,030,999
Germany	115,750	1,494,585	35,770	54,239	19,500	1,719,844
Greece	22,063	394,623	7,221	5,956	441	430,304
Hungary	41,984	96,985	4,208	9,769	187	153,132
Ireland	9,921	124,500	2,862	4,887	661	142,831
Italy	139,426	1,110,602	16,526	39,815	4,180	1,310,549
Latvia	2,830	27,882	1,874	4,344	464	37,395
Lithuania	12,907	32,197	2,468	4,937	217	52,725
Luxembourg	5,194	14,099	536	1,042	n/a	20,871
Malta	1,400	9,807	810	711	n/a	12,728
Netherlands	95,794	338,640	10,128	18,121	7,563	470,247
Poland	71,369	187,706	13,379	35,676	4,557	312,687
Portugal	18,352	243,972	6,328	11,834	634	281,120
Romania	42,498	126,530	4,378	2,552	503	176,461
Slovakia	16,545	46,639	1,707	5,048	n/a	69,938
Slovenia	7,060	24,915	663	1,298	n/a	33,937
Spain	86,666	1,073,032	24,319	41,064	12,104	1,237,185
Sweden	25,143	151,839	2,841	20,405	2,222	202,449
Total EU	1,084,426	7,001,383	197,104	416,414	81,345	8,780,672

n/a: Note available.

Partially tourism-related activities include land and water transport (H4910, H4919, H5010 and H5030), food and beverage services (I5610 and I5630), rental services (N7711, N7712 and N7721), cultural activities (R9004, R9102, R9103 and R9104) and recreational activities (R9321). Value at country level could be underestimated due to the lack of data for extrapolation. When value was missing for 2018, extrapolation was done based on the average growth rate trend of the two previous year. If any information was available in EUROSTAT we used as proxy the number of persons employed by NACE code from ORBIS. ORBIS reports the accounting data, however, not all entities are listed in ORBIS and not all listed reported information about employment. Total employment in amusement parks and theme parks was extracted from ORBIS and refers to the last year available.

Source: Own estimation based on EUROSTAT and ORBIS.

Table 9. Arrivals at tourist accommodation establishments by reporting and residence country, EU, 2018

Country	Domestic	Foreign tourist		Total	
		N°	% Total	N°	% EU
Austria	13,087,273	27,006,207	67%	40,093,480	4.2%
Belgium	8,441,061	9,118,854	52%	17,559,915	1.8%
Bulgaria	3,889,521	3,910,159	50%	7,799,680	0.8%
Croatia	2,013,924	16,635,013	89%	18,648,937	1.9%
Cyprus	511,418	2,665,743	84%	3,177,161	0.3%
Czechia	10,635,756	10,611,394	50%	21,247,150	2.2%
Denmark	4,935,224	3,031,450	38%	7,966,674	0.8%
Estonia	1,450,960	2,140,535	60%	3,591,495	0.4%
Finland	8,742,953	3,224,164	27%	11,967,117	1.2%
France	118,970,003	52,505,891	31%	171,475,894	17.8%
Germany	140,494,471	38,747,698	22%	179,242,169	18.6%
Greece	7,804,544	20,913,550	73%	28,718,094	3.0%
Hungary	7,170,933	5,945,123	45%	13,116,056	1.4%
Ireland (*)	6,704,976	4,053,928	38%	10,758,904	1.1%
Italy	64,905,729	63,195,203	49%	128,100,932	13.3%
Latvia	883,411	1,925,397	69%	2,808,808	0.3%
Lithuania	1,875,657	1,744,733	48%	3,620,390	0.4%
Luxembourg	121,304	1,017,733	89%	1,139,037	0.1%
Malta	184,577	1,798,002	91%	1,982,579	0.2%
Netherlands	25,132,289	18,780,326	43%	43,912,615	4.6%
Poland	26,813,699	7,082,231	21%	33,895,930	3.5%
Portugal	10,830,619	15,035,803	58%	25,866,422	2.7%
Romania	10,029,531	2,786,468	22%	12,815,999	1.3%
Slovakia	3,273,224	2,213,983	40%	5,487,207	0.6%
Slovenia ⁽¹⁾	1,292,842	4,190,804	76%	5,483,646	0.6%
Spain	65,032,598	65,771,059	50%	130,803,657	13.6%
Sweden	23,519,609	7,217,241	23%	30,736,850	3.2%
Total EU	569,481,915	391,739,409	41%	961,221,324	100%

⁽¹⁾ The share of foreign tourist was estimated based on its contribution for the total number of arrivals in the last two available year.

Source: EUROSTAT.

Table 10. Number of air passenger transport by reporting country and travel coverage, EU, 2018

Country	National transport	International transport		Total	
		Intra-EU	Extra-EU	N°	% Total EU
Austria	605,991	18,894,782	11,834,104	31,334,877	2.4%
Belgium	9,150	23,095,720	11,467,865	34,572,735	2.6%
Bulgaria	323,478	7,657,203	4,200,694	12,181,375	0.9%
Croatia	573,815	5,844,984	3,379,879	9,798,678	0.8%
Cyprus	1	4,435,161	6,660,726	11,095,888	0.8%
Czechia	89,017	9,963,047	7,841,877	17,893,941	1.4%
Denmark	1,951,008	19,915,118	12,923,646	34,789,772	2.7%
Estonia	27,784	2,149,972	818,074	2,995,830	0.2%
Finland	3,086,488	12,180,903	7,001,449	22,268,840	1.7%
France	31,599,007	60,743,890	70,504,126	162,847,023	12.5%
Germany	23,788,036	108,237,054	90,991,966	223,017,056	17.1%
Greece	8,549,772	29,255,015	16,450,245	54,255,032	4.2%
Hungary	2,628	9,278,202	5,931,525	15,212,355	1.2%
Ireland	104,038	16,901,032	19,454,698	36,459,768	2.8%
Italy	32,304,585	74,815,381	47,026,256	154,146,222	11.8%
Latvia	10,683	4,154,196	2,874,248	7,039,127	0.5%
Lithuania	422	3,520,516	2,738,705	6,259,643	0.5%
Luxembourg	757	3,046,207	941,840	3,988,804	0.3%
Malta	360	4,598,557	2,206,726	6,805,643	0.5%
Netherlands	6,182	39,087,403	40,776,159	79,869,744	6.1%
Poland	1,907,198	23,523,491	18,323,429	43,754,118	3.4%
Portugal	5,091,646	27,994,615	17,863,536	50,949,797	3.9%
Romania	1,442,815	12,988,849	5,439,010	19,870,674	1.5%
Slovakia	27,604	1,373,464	1,413,262	2,814,330	0.2%
Slovenia	0	860,950	949,617	1,810,567	0.1%
Spain	39,972,242	104,536,249	76,244,905	220,753,396	16.9%
Sweden	7,706,047	21,034,015	10,443,565	39,183,627	3.0%
Total EU	159,180,754	650,085,976	496,702,132	1,305,968,862	100.0%

Value refers to passenger on board. All passengers on board of the aircraft upon landing at the reporting airport or at taking off from the reporting airport. Includes direct transit passengers (counted at arrivals and departures).

Source: EUROSTAT.

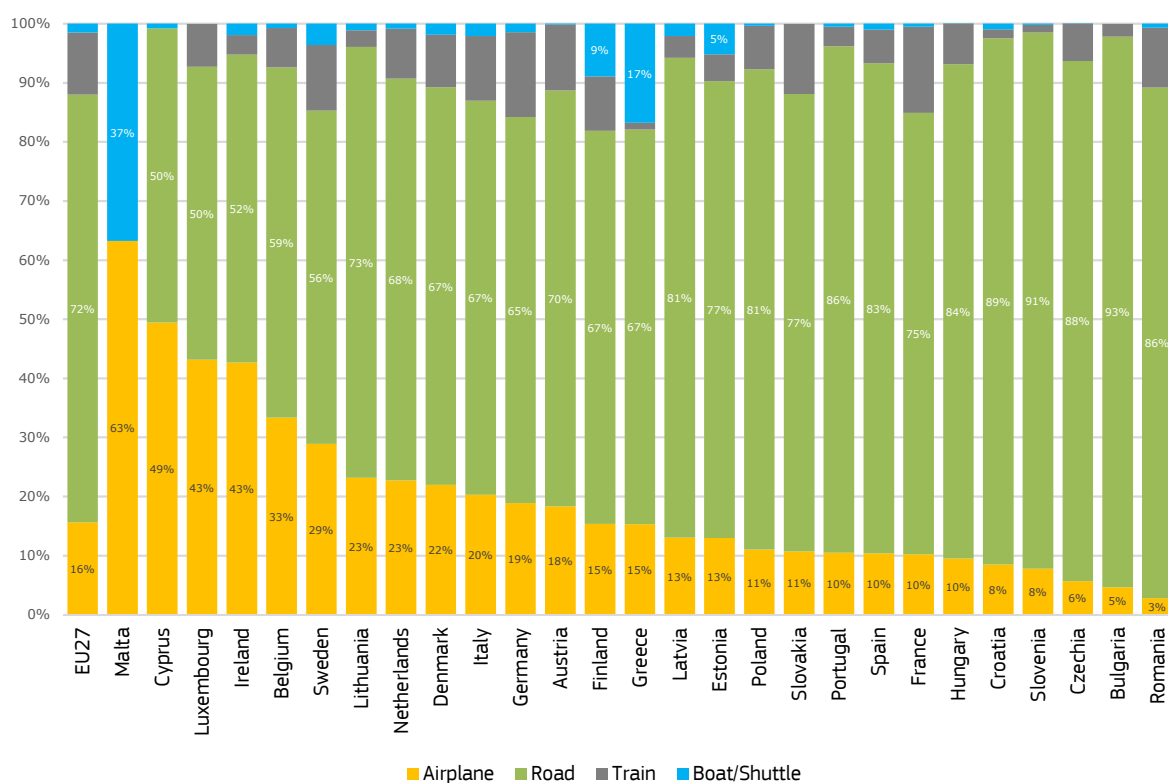
Table 11. Average expenditure per trip by expenditure categories, EU, 2015

Expenditure by category	Domestic		Outbond		All countries of the world	
	€	% Total	€	% Total	€	% Total
Expenditure on transport	57 €	24%	280 €	33%	111 €	29%
Expenditure on restaurants/cafés	42 €	18%	117 €	14%	56 €	15%
Expenditure on accommodation	68 €	29%	262 €	31%	115 €	30%
Expenditure on durables and valuable goods	8 €	3%	31 €	4%	13 €	4%
Other expenditure	60 €	25%	162 €	19%	84 €	22%
Total expenditures (average)	212 €		759 €		343 €	

The value refers to trips with a duration of 1 night or over (i.e. trips with overnight stay).

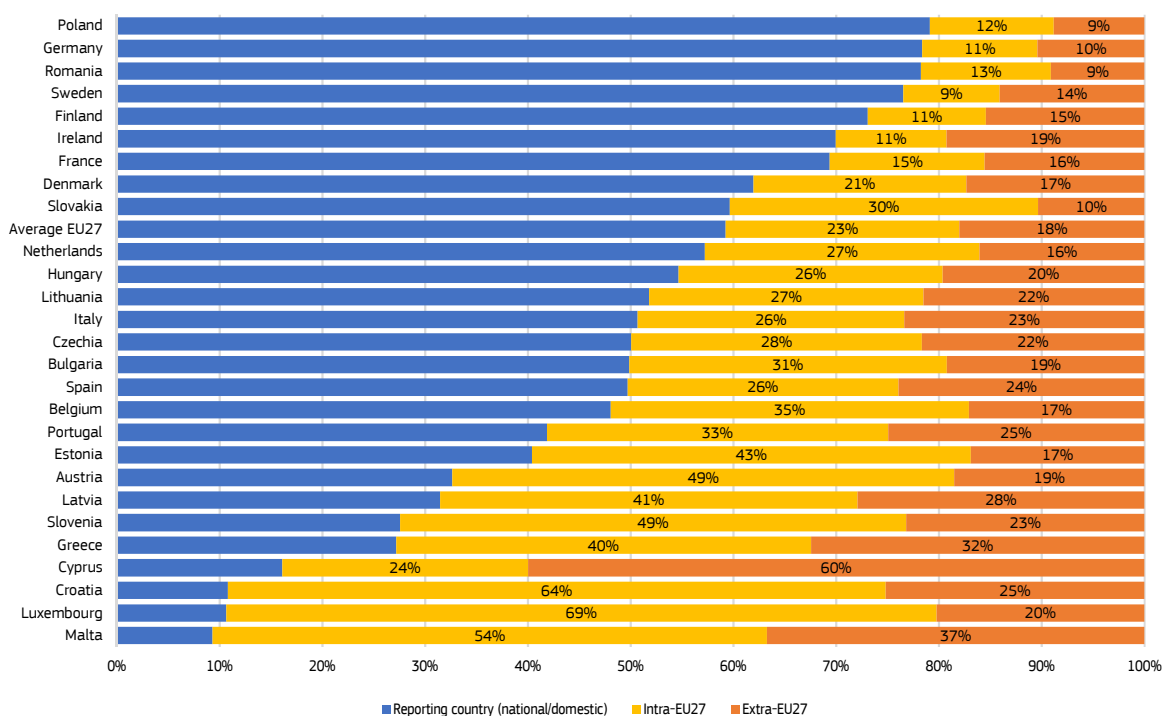
Source: Own estimation based on EUROSTAT.

Figure 27. Trips (with a duration of 1 night or over) by mode of transport, 2017, EU (% Total)



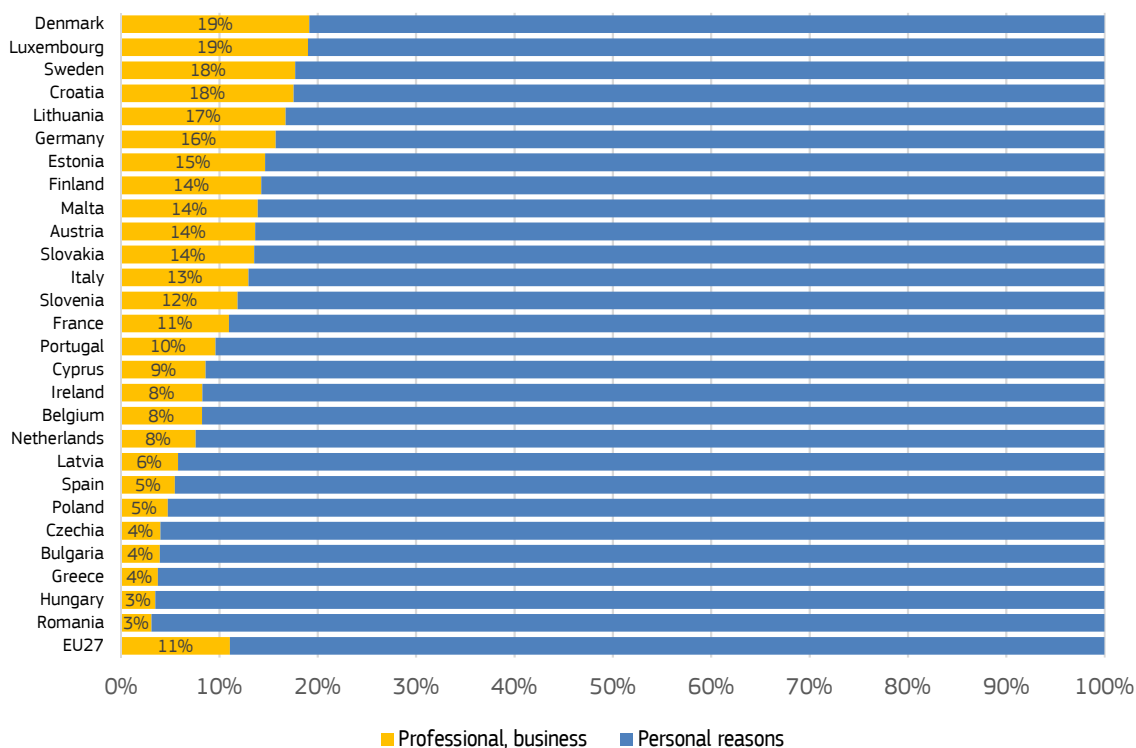
Source: Own elaboration based on EUROSTAT data.

Figure 28. Arrivals at tourist accommodation establishments, by region of residence, EU, 2019



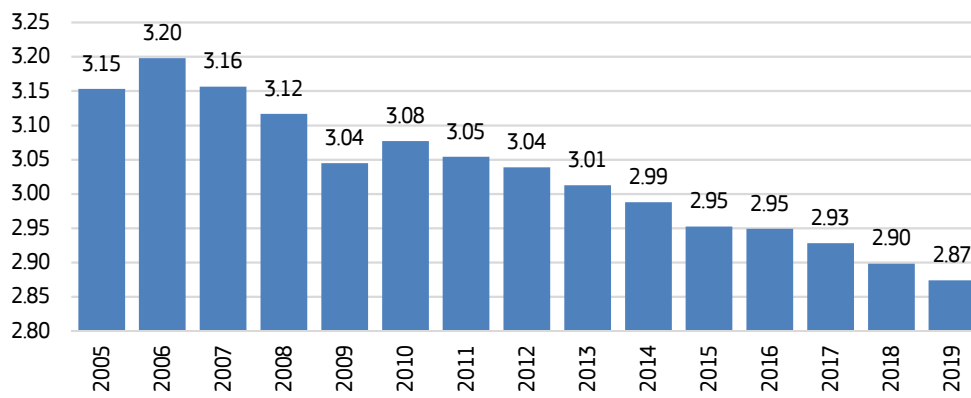
Source: Own estimation based on EUROSTAT data.

Figure 29. Trips (with a duration of 1 night or over) by purpose, 2018, EU (% Total)



Source: Own estimation based on EUROSTAT data.

Figure 30. Average number of nights per tourist arrivals, 2005 – 2019, EU



Value refers to the ratio between the number of nights spent and arrivals at tourist accommodation establishments.

Source: Own estimation based on EUROSTAT data.

8.2 Changes in consumer, traveler and entrepreneur behavior as the result of COVID-19 outbreak: summary of main findings from recent surveys

Table 12. Willingness to travel, holiday budget and destinations preferences: Findings from recent surveys

Author	Country of residence	Survey period and respondents	Main findings
Azurite Consulting (2020)	US (mainly)	<ul style="list-style-type: none"> – 17-24 April 2020 – 3,500 Americans 	<ul style="list-style-type: none"> – 36% who took an international flight in 2019, will wait for a vaccine before their next international flight, and 30% of domestic flyers will also wait – 26% who stayed in a hotel in 2019, will wait for a vaccine before their next stay – 41% who went to a theatre, opera or concert in 2019, won't go again until there is a vaccine
DNA (2020)	Spain	<ul style="list-style-type: none"> – 23-27 April 2020 – 1,028 	<ul style="list-style-type: none"> – 60% have a strong willingness to travel – 21.4% moderate willingness to travel – 53% don't expect to change the length of their holidays, whereas about 32% will make it shorter. About 8% will spit them more – About 78% of respondents prefer national destinations
HES-SO (2020)	Belgium Spain France Italy Netherlands Switzerland	<ul style="list-style-type: none"> – 27 March - 6 April 2020 – 632 	<ul style="list-style-type: none"> – 62% have still a moderate-strong willingness to travel – Cancellation of future trips to countries affected by coronavirus (64%) – Cancellation of future trips even if the countries concerned are not affected by the coronavirus (46%) – Decision to travel to another country depends on whether or not there is a travel warning issued for that country (64%)
EY (2020b)	Spain	<ul style="list-style-type: none"> – 15-17 April 2020 – 2,106 	<ul style="list-style-type: none"> – 50% plan to go on holidays and only 10% outside the home-country – 42% of respondents plan to spend less, much less, or even nothing on tourism activities after the end of the pandemic – 70% of travelers are willing to pay more for flexibility in terms of cancellation and changes to their trips – 30% of respondents plan to reduce their spending on bars and restaurants, once the health crisis is over – 50% of respondents will limit, or even totally avoid, nights out
VVF (2020)	France	<ul style="list-style-type: none"> – 20-29 April 2020 – 4,000 	<ul style="list-style-type: none"> – 16 % foresee to reduce holidays budget and 15% to make holidays shorter – 88% plan to stay in home-country for Summer holidays – Cities and distant destinations are the least sought after by tourists. Preferences go for sea (41%) and mountain/nature (43%) destinations
SumWhere (2020)	France	<ul style="list-style-type: none"> – 30 April – 10 May 2020 – 390 	<ul style="list-style-type: none"> – 58% will change their usual holidays destinations – 66% are looking for different experiences: nature (44%), sport activities (27%) and discovery (21%) – 53% expect to change their destinations in the future – 36% expect to change the duration of the stay
Interface France (2020c)	Italy Spain France Netherlands	<ul style="list-style-type: none"> – May 2020 – 1,100 	<ul style="list-style-type: none"> – Reduction of travel budget: 10% - 30% (comparison 2019) – Safety, health, insurance / cancellation and reimbursement policies are the main criteria when choosing the holiday destination – Domestic travels will be privileged (76%) – Rural and nature destinations (73%) are among the first choices
Gursoy et al. (2020)	US	<ul style="list-style-type: none"> – 1 – 7 May 2020 – 785 	<ul style="list-style-type: none"> – 56% are not willing to travel and stay at a hotel in June or July 2020 – 60% will wait at least 3-6 months or longer to travel to a destination and stay at a hotel – Health and sanitary measures are the most important safety precautions respondents expect from a hotel – Preferences for beach or lakeside getaways and road trips through scenic countryside after Spring 2020 lockdown

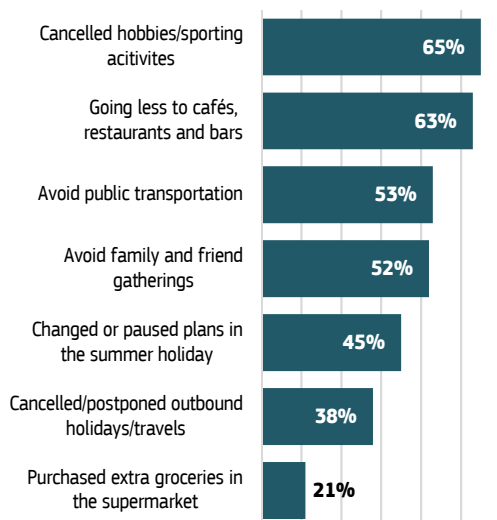
Source: Own elaboration based on **Azurite Consulting** (2020), **DNA** (2020), **HES-SO** (2020), **EY** (2020b), **VVF** (2020), **SumWhere** (2020), **Interface France** (2020c) and **Gursoy et al.** (2020).

Table 13. Tourist issuing market, situation and trends COVID-19

Author	Partner region	Main findings
TURESPAÑA (2020a)	US	<ul style="list-style-type: none"> – The number of new cases in US is still growing (7 June 2020) – US government recommended to avoid travels and to restrict them to a minimum, to help to stop disease spread – Such mobility restrictions are expected to generate a fall of 45% in US arrivals in EU in 2020, with a decrease between 60% and 70% until October. However, an increase in the optimism and willingness to travel is observed on the periodic surveys. Those who will not travel until there is a vaccine have dropped from 36.5% to 30%
TURESPAÑA (2020b)	UK	<ul style="list-style-type: none"> – The number of new cases in UK is still growing (7 June 2020) – On May 22, government has announced a mandatory quarantine for all the travelers coming from outside UK, including national citizens. This measures will start on June 8 and will revised after 3 weeks. UK Government recommended to avoid trips outside the territory, to stop disease spread – It is expected that tourist behavior can be particularly affected in short term by all the health and sanitary restrictions and certifications to travel. However, about 39% of British citizens still have a will to travel after confinement restrictions and 29% are thinking in postponing holidays for 2021

Source: Own elaboration based on TURESPAÑA (2020a; 2020b).

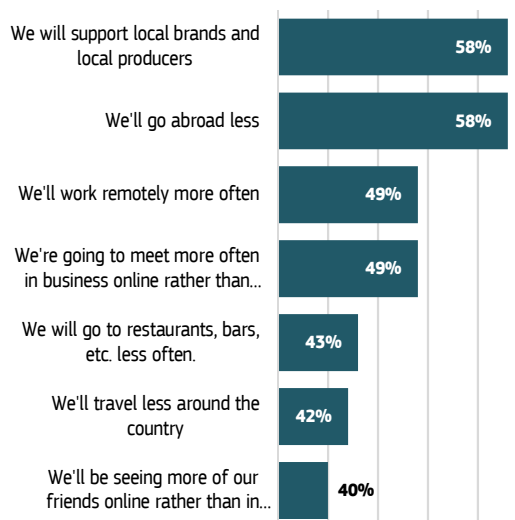
Figure 31. Change of habits due to the coronavirus, Denmark 2020



Information refers to the question "Which of the following things have you done because of the coronavirus situation?". Multiple answers were possible. Survey time period: March 13-15, 2020; Number of respondents: 1,011; Method of interview: Computer-assisted web interviews (CAWI).

Source: Statista – <https://www.statista.com/statistics/1110747/change-of-habits-due-to-the-coronavirus-in-denmark/>

Figure 32. Public behavior after the coronavirus pandemic, Poland 2020



Information refers to the questions "How will a coronavirus (COVID-19) pandemic affect our future behavior compared to the period before the pandemic?". Data refers to the answer "definitely yes" and "rather yes". Survey time period: April 15-17, 2020; Number of respondents: not available; Method of interview: Postal questionnaire.

Source: Statista – <https://www.statista.com/statistics/1112355/poland-behavior-after-the-coronavirus-pandemic/>

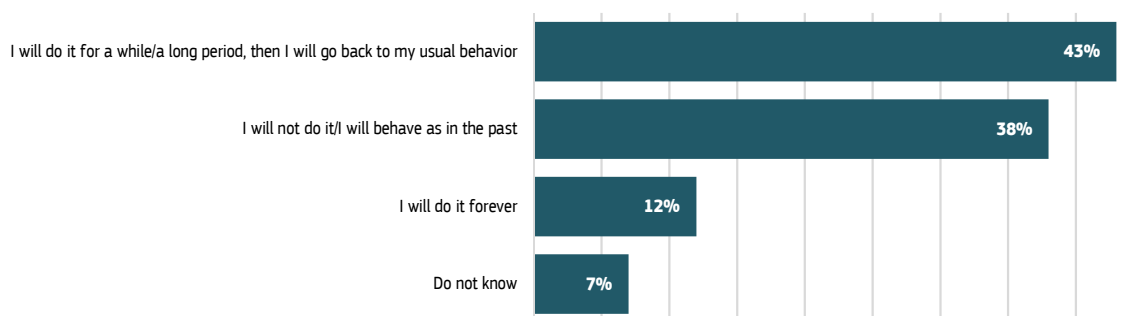
Table 14. Activities people will avoid once COVID-19 restrictions are lifted: Germany, UK and US, 2020

Activities	Germany	United Kingdom	United States
Cinema / theatre	49%	58%	58%
Music festivals	57%	59%	58%
Music concerts	55%	58%	57%
Sports events	53%	57%	56%
Pubs / bars / clubs	49%	62%	56%
Gym / sports centres	43%	52%	50%
Restaurants / café's	33%	53%	46%
Large retail shops / shopping centres	28%	47%	45%
Museums / galleries	32%	45%	44%
Shopping downtown / highstreets	23%	36%	37%
Hairdressers / beauty salons	22%	36%	31%
Holidays	42%	51%	20%
Supermarket / grocery shops	7%	20%	15%
Other	3%	1%	3%
Not planning to do anything less	21%	14%	16%

Information refers to the question “Thinking about once the restrictions are lifted, which of the following are you likely to try and avoid for the time being, because of coronavirus / Covid-19?”. Multiple answers were possible. Survey time period: May 25 to 31, 2020; Number of respondents: 2,137 ; Method of interview: Online survey.

Source: Statista - <https://www.statista.com/statistics/1116242/things-people-will-try-and-avoid-once-covid-19-restrictions-are-lifted/>

Figure 33. Opinions on future holiday travels reduction due to the coronavirus, Italy 2020



Information refers to the question “In the future, are you going to reduce holiday travels because of the coronavirus (COVID-19) pandemic?”. Survey time period: April 13-15, 2020; Number of respondents: 502 ; Method of interview: Online interview.

Source: Statista - <https://www.statista.com/statistics/1120224/opinions-on-holiday-travels-due-to-the-coronavirus-in-italy/>

Table 15. Measures taken by companies concerning employment: Findings from recent surveys

Author	Country of residence	Survey period and respondents	Main findings
Deloitte (2020)	Spain	<ul style="list-style-type: none"> – 4-13 May 2020 – 161 companies (400,000 jobs) 	<ul style="list-style-type: none"> – 58% had taken measures in terms of employment, such measures are: lay-off (47%); paid vacation (35%); reduction of temporary contract (31%); reduction of working hours (28%); reduction of permanent contracts (2%) – 75% (operating in tourism sector) expect to reduce their level of employment while 25% to increase it
MAKRO (2020)	Spain	<ul style="list-style-type: none"> – 26-30 March 2020 – 3,600 companies (accommodation and food & beverage services sector) 	<ul style="list-style-type: none"> – 90% have closed their doors during the state of alarm – 12% have adopted alternative measures such as home delivery to mitigate the effects of the crisis – 57% have requested the lay-off – 11% have reduced the employees' salaries
Global Data (2020b)	Worldwide	<ul style="list-style-type: none"> – 24-29 Mar and 25-31 May (weekly surveys) 	<ul style="list-style-type: none"> – 45% announced or expected lay-offs (all sectors)
Azurite Consulting (2020)	US (mainly)	<ul style="list-style-type: none"> – 17-24 April 2020 – 3,500 Americans 	<ul style="list-style-type: none"> – 22% Laid-off employees (Tourism, Travel, and Leisure sector) – 15% Furloughed employees (Tourism, Travel, and Leisure sector) – 26% Reduced Working Hours (Tourism, Travel, and Leisure sector) – 70% believe companies will hire fewer employees to perform the same work as before Covid-19 and tourism sector will be the most affected – 83% of companies have cut expenses, namely in growth related, marketing and advertising, salary and laid-off employees

Source: Own elaboration based on **Deloitte** (2020), **MAKRO** (2020), **Global Data** (2020b) and **Azurite Consulting** (2020).

Table 16. Changes in entrepreneur strategy: Findings from recent surveys and studies

Author	Geo	Main findings
Azurite Consulting (2020)	US	<ul style="list-style-type: none"> – Remote digital working tools will permanently change how people do business. COVID-19 is going to cause companies to permanently re-consider the need for travel or in-person meetings and digital tool usage will become permanent after COVID-19
Deloitte (2020)	Spain	<ul style="list-style-type: none"> – As the result of COVID-19 crisis, in 2020 most surveyed companies will cut their expenses/investment, namely with growth-related (44%), marketing (42%) and R&D (25%)
EY (2020a)	Worldwide	<ul style="list-style-type: none"> – Most of the surveyed companies are taking steps to change or are aware of the need to re-evaluate their operating models in response to the emerging crisis, namely in terms of global value chains (92%), speed of automation (77%), managing workforce (74%) and digital transformation (69%)
Global Data (2020)	Worldwide	<ul style="list-style-type: none"> – Forced acceleration of digital strategy adoption in almost all sectors – Raised of consumer awareness on the negative implications of globalization (e.g. environmental, social, and governance issues), which could push further sustainability, climate change, and inclusiveness dimensions in the agenda of companies

Source: Own elaboration based on **Azurite Consulting** (2020), **Deloitte** (2020), **EY** (2020a) and **Global Data** (2020).

8.3 Methodological notes

8.3.1. Background theory

The tourism-led growth hypothesis (TLGH) lies on the assumption that tourists generate directly or indirectly additional demand for goods and/or services in a region or country, able to stimulate employment creation, investment and economic growth (**Song et al. 2012**). The origin of this concept (**Balaguer and Cantavella-Jordá, 2002**) comes from the export-led growth theory, once international tourist consumption is equated to the “export of goods” because it brings foreign capital to the region/country, but with the difference that the goods/services are consumed within the producing territory. This last characteristic categorizes tourism as non-tradable goods, which by definition are labour-intensive and low-intensive technology (**Inchausti-Sintes, 2015**).

Nevertheless, despite the neoclassical economic theory (**Solow, 1956**) pointed out technological progress as the main driver of long-run economic growth, over the last decades, studies ⁽³⁹⁾ as demonstrated the significant contribution of tourism for economic growth, despite the low-intensive technology of this sector (**Inchausti-Sintes, 2015**). In this case, the positive tourism-growth effect is achieved as the results of three main factors:

- Capital accumulation, as an outcome of capital flows from tourists receipts;
- Local and international market competition, able to enhance efficiency;
- Economies of scales, consequences of tourism specialisation and concentration (**Sinclair and Stabler, 1997**).

To support the growth of tourist flow, new jobs are also created. As a labour-intensive and -absorptive sector, with long-term growth potential, the tourism sector is considered a very attractive policy orientation for less developed regions and countries. Nevertheless, even if, the spread of tourism sector is a good development strategy, the magnitude of its effect depends on the quality of the services and the endowments of people who provide them (**Di Liberto, 2013**).

Human capital is particularly important in the tourism sector, once “tourism is about people” (**UNWTO and ILO, 2014:19**). On the demand side, there are travellers and visitors looking for experiences, which are offered by tourism products and services (supply-side), with tangible and intangible dimensions, including the ‘human touch’ of experience.

The growth of tourism demand in a territory strongly depends on the image and satisfaction of travelers about the destination. For instance, employees attributes are among the main determinants of hotel guest satisfaction (**Akan, 1995**), customer value of the establishment and whether a guest will recommend a hotel (**Dortyol et al. 2014**).

Human capital is in the front line of tourism sector. Employees are the first contact of the tourist when it travels (e.g. air plane and train) and arrives in the destination place (e.g. accommodation establishment) or when it makes the reservation in a travel agency.

The importance of ‘human contact’ in tourism sector makes it particularly vulnerable to government measures to stop COVID-19 spread and dissemination (e.g. mobility restriction and social distance). Secondly, its socio-economic contribution for regional/national GDP and employment in some territories let us foresee that the territories the most dependent on tourism activities will be the most affected.

The present study focus on assessing the effect of the slowdown of tourism activity, as the result of COVID-19 outbreak, on the employment. To that end, the first step consists on the quantification of tourism-employment relationship in the EU and then together with a scenario based-analysis, to provide an estimation of potential job losses at regional and country level.

⁽³⁹⁾ For a review of the literature see e.g. **Song et al. (2012)** and **Brida et al. (2016)**.

8.3.2. Data and methodology

To estimate the relationship between the tourism demand/flow and regional employment, we use a panel data at NUTS II (version 2016), covering the EU25 and the period 2000-2018. Ireland and Lithuania are not included due to missing data at regional level. All statistical data were extracted from EUROSTAT.

Tourism demand/flow is measured by the number of arrivals at tourism accommodations establishments. This variable was selected, instead of the number of nights spent at tourism accommodations establishments, because it is more related with accessibility and it is a better *proxy* for the number of tourist in a territory than the nights spent, which is linked with the duration of the stay. Scientific literature also used frequently the number of air transport of passengers as proxy for demand tourism (see e.g. **Peroco, 2010; Santos and Cincera, 2018**), however, taking into account that airplane only represented 16% of the transport modes in EU (Figure 27), when others ways of transport are available, it seems that this variable will only cover part of the tourism demand/flow in region.

The regional employment model used in the present study, based on **Peroco (2010)** and **Özcan (2013)**, is a function of tourism demand/flow and a set of exogenous variables, as follows:

$$EMP_{i,t} = f(TUR_{i,t}, X_{i,t}) \quad (1)$$

Where:

- $EMP_{i,t}$: Total employment
- $TUR_{i,t}$: Arrivals at tourists accommodations establishments (endogenous variable)
- $X_{i,t}$: Control variables (GDP; population; qualification human capital)
- All variables are indexed to region i and year t . Monetary variables are expressed in national Purchasing Power Parity ⁽⁴⁰⁾ (PPP) and deflated by country GDP price index (base year 2018).

Table 17 provides a detailed description and definition of the variables included in the model. Descriptive statistics are displayed in Table 18. To control for potential endogeneity issue of tourism demand/flow, we used a Two-Step Generalized Method of Moments (GMM) with fixed effects. The GMM estimators perform better than the Two-Stage Least Squared (2SLS) in providing efficient results is the presence of heteroscedasticity. The excluded instruments correspond to the one and two lags of the endogenous variable, as usually used in literature.

Table 17. Variable description (econometric regression)

Variable	Description
Employment	<i>Employment covers all persons engaged in some productive activity that falls within the production boundary of the national accounts. Employed persons are either employees (persons who work by agreement, work for a resident institutional unit and receive a remuneration recorded as compensation of employees) or self-employed (persons who are the sole owners, or joint owners, of the unincorporated enterprises in which they work, excluding those unincorporated enterprises that are classified as quasi-corporations).</i>
Tourism	<i>Arrivals of residents and non-residents. An arrival is defined as a person (tourist) who arrives at a tourist accommodation establishment and checks in or arrives at non-rented accommodation. No age limit is applied: children are counted as well as adults, even in the case when the overnight stays of children might be free of charge. The arrivals of same-day visitors spending only a few hours during the day (no overnight stay, the date of arrival and departure are the same) at the establishment are excluded from accommodation statistics.</i>
GDP	<i>Gross domestic product at market prices is the final result of the production activity of resident producer units. It is the sum of gross value added of the various institutional sectors or the various industries plus taxes and less subsidies on products (which are not allocated to sectors and industries).</i>
Qualification of HC	<i>Qualification of Human Capital (HC) corresponds to the share of population with the tertiary education (highest level of education successfully completed by the individuals of a given population). Tertiary education covers ISCED 2011 levels 5, 6, 7 and 8 (short-cycle tertiary education, bachelor's or equivalent level, master's or equivalent level, doctoral or equivalent level).</i>
Population	<i>Number of inhabitants of a given area on 1 January of the year in question (or, in some cases, on 31 December of the previous year) are estimated based on the concept of usual resident population. Usually resident population means all persons having usual residence in a country/region at the reference time.</i>

Source: EUROSTAT – Metadata.

⁽⁴⁰⁾ Regional PPP are not available.

Table 18. Descriptive statistics (econometric regression)

Variables	Obs.	Mean	Std. Dev.	Min	Max
Employment (N° x 1,000)	3,080	786	691	13	5,349
Tourists arrivals (N° 1,000)	3,080	3,245	4,111	58	45,558
GDP - PPP and constant price (million €)	3,080	46,063	58,055	37	659,959
Population (N° x 1,000)	3,080	1,849	1,650	26	12,211
Share pop. with higher education (x 100)	3,080	24.6	9.1	6.5	58.4

The regional employment model (1) is estimated using a linear model and a log linear model, because we are interested in the quantification of both absolute and relative changes. To test for the presence of multicollinearity issue, Table 19 and Table 20 report the results of the Variance Inflation Factor (VIF) and correlation matrix. Correlation coefficients display a medium-high relationship between some of the variables, however, once the maximum value for VIF is less than 5, this could suggest that no evidence of collinearity is found. Indeed, only VIF values higher than 10 can suggest evidence of collinearity (**Baum, 2006**).

Table 19. Collinearity Diagnostics (VIF) and correlation matrix (Linear model)

Variables	VIF	Correlation matrix			
		(1)	(2)	(3)	(4)
(1) Tourist arrivals (N° 1,000)	2.54	1			
(2) GDP at PPP and constant price (million €)	4.01	0.712	1		
(3) Population (N° x 1,000)	4.82	0.761	0.849	1	
(4) Share pop. with higher education (x 100)	1.13	0.136	0.150	-0.009	1
Mean VIF	3.13				

Table 20. Collinearity Diagnostics (VIF) and correlation matrix (Log linear model)

Variables	VIF	Correlation matrix			
		(1)	(2)	(3)	(4)
(1) Log(Tourist arrivals)	2.02	1			
(2) Log(GDP)	1.68	0.578	1		
(3) Log(Population)	1.89	0.644	0.527	1	
(4) Share pop. with higher education (x100)	1.11	0.201	0.254	0.025	1
Mean VIF	1.68				

Once estimated and quantified the relationship between tourism and employment, in order to foresee the effect of tourism slowdown due to COVID-19 outbreak, we use a scenario based analysis. This technique analyses future trends, not just taking into past trends, but rather considering an alternative possible outcomes. With the aim to understand how markets will evolve in the coming months, we used the results of surveys reporting changes in consumer behaviour.

8.3.3. Econometric results

Table 21 and Table 22 report the results of regression analysis using 2-Step GMM with fixed effects. Table 21 refers to a simple linear model, where the coefficients express the absolute changes. Table 22 presents the results of a log linear (also called log-log) model, where coefficients give the elasticities, i.e. information about the relative changes.

Table 21. Results of 2-Step GMM estimation with fixed effects, Linear model, EU25, 2000-2018, dependent variable: Employment (1,000)

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Tourists arrivals (N° 1,000) ⁽¹⁾	0.0242*** (0.00210)	0.0227*** (0.00260)	0.0246*** (0.00301)	0.0188*** (0.0028)	0.0229*** (0.0026)	0.0201*** (0.003)
GDP (million €) in T-1	-	-	0.0044*** (0.0007)	-	-	0.0043*** (0.0007)
Population (N° x 1,000) in T-1	-	-	-	0.0565** (0.0274)	-	0.0720*** (0.023)
Share pop. with higher education (x 100) in T-1	-	-	-	-	-0.809* (0.435)	-1.077*** (0.373)
Year dummy	No	Yes	Yes	Yes	Yes	Yes
Region fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,080	3,080	3,080	3,080	3,080	3,080
Centred R-squared	0.136	0.210	0.435	0.215	0.210	0.445
Number of regions NUTS II	221	221	221	221	221	221
Wald test	0.000	0.000	0.000	0.000	0.000	0.000
Kleibergen-Paap LM statistic	0.000	0.000	0.000	0.000	0.000	0.000
Hansen J statistic	0.151	0.264	0.921	0.122	0.264	0.465

⁽¹⁾ Endogenous variable. Instruments included the first and second lag of the endogenous variable.

Data refers to NUTS II (version 2016) and EU minus 2, once Ireland and Lithuania are not included due to missing data at regional level. Robust standard errors in parentheses. Significance level: *** p<0.01, ** p<0.05, * p<0.1. Null hypothesis in the specification tests are: Wald test - *H0: all coefficient = 0*; Hansen J statistic - *H0: overidentification restrictions*; Kleibergen-Paap LM statistic - *H0: equation is underidentified*. Results of specification tests refer to p-value.

Source: Own estimation based on EUROSTAT data.

The results of Sargan-Hansen test for overidentifying restrictions confirm that the instruments are valid instruments, i.e., uncorrelated with the error term and that the excluded instruments are correctly excluded from the estimated equation. The tests for under-identification and weak identification display that the equation is identified, meaning that the excluded instruments are correlated with the endogenous regressor and are relevant.

To confirm that the coefficients of our main explanatory variable (tourism demand/flow) is not biased by multicollinearity issues, Table 21 and Table 22 also reports the results of different model specification, i.e. including one-by-one each of the control variables. The values of our endogenous variables show to be stable and significant to different combination of variables, confirming that correlation between variables don't bias the estimations of tourism demand/flow.

The interpretation of coefficients in linear model (Table 21) show that if **tourism demand/flow increases by 1,000 units, on average the level of employment increase by 20**. In turn, results log linear model (Table 22) display that an **increase of 10 % of tourist arrivals generates, on average, an increase by 0.9% of employment level** ⁽⁴¹⁾.

Concerning the sign of our control variable, except the share of population with higher education, they have the expected sign (positive). The negative coefficient of the share of higher education is due to multicollinearity issues with region dummies (fixed effect). Indeed, a simple OLS without regions dummies

⁽⁴¹⁾ The value of this elasticity is close to that of **Peroco** (2010). This authors found an elasticity between air passengers and employment for Italian regions in 2002/2003 of 0.024. Taking into account that air transport only accounts for 20% of the trips transport mode in Italy (Figure 27), then we can estimate that the elasticity of **Peroco** (2010) can be converted in 0.12, which close to the value reported in column (6) of Table 22 of 0.09.

(available upon request) displays a positive relationship between this variables. However, when we add the region dummies (or fixed effects) the sign of the variable turns to negative. Nevertheless, once education is only a control variable and region dummies are needed to control for other regions characteristics we decided to maintain education in the model specification.

Table 22. Results of 2-Step GMM estimation with fixed effects, Log linear model, EU25, 2000-2018, Dependent variable: Log(Regional Employment)

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Log(Tourist arrivals) ⁽¹⁾	0.0915*** (0.0159)	0.0480* (0.0256)	0.0803*** (0.0211)	0.0662*** (0.0247)	0.0437* (0.0259)	0.0902*** (0.0216)
Log(GDP) in T-1	-	-	0.266*** (0.0288)	-	-	0.236*** (0.0290)
Log(Population) in T-1	-	-	-	0.588*** (0.0885)	-	0.373*** (0.0736)
Share pop. with higher education (x 100) in T-1	-	-	-	-	0.00186 (0.00157)	-0.00177 (0.00108)
Year dummy	No	Yes	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,080	3,080	3,080	3,080	3,080	3,080
Centred R-squared	0.066	0.180	0.433	0.285	0.186	0.466
Number of regions NUTS II	221	221	221	221	221	221
Wald test (p-value)	0.000	0.000	0.000	0.000	0.000	0.000
Kleibergen-Paap LM statistic	0.000	0.000	0.000	0.000	0.000	0.000
Hansen J statistic (p-value)	0.225	0.260	0.231	0.155	0.244	0.174

⁽¹⁾ Endogenous variable. Instruments included the first and second lag of the endogenous variable.

Data refers to NUTS II (version 2016) and EU minus 2, once Ireland and Lithuania are not included due to missing data at regional level. Robust standard errors in parentheses. Significance level: *** p<0.01, ** p<0.05, * p<0.1. Null hypothesis in the specification tests are: Wald test - *H0: all coefficient = 0*; Hansen J statistic - *H0: overidentification restrictions*; Kleibergen-Paap LM statistic - *H0: equation is underidentified*. Results of specification tests refer to p-value.

Source: Own estimation based on EUROSTAT data.

Based on the result of the linear model (Table 21) and also because we have a strict linear relationship ⁽⁴²⁾, the total net effect of tourist flow on regional employment can be estimated. Therefore, assuming that the number of arrivals at tourists accommodations establishments in 2018 was more than 942 million in EU, the **contribution of tourist flows accounted for about 19 million ⁽⁴³⁾ of the total employment in EU in 2018**. This value capture the direct and derivative ⁽⁴⁴⁾ effects coming from (mainly and partially) tourism-related activities and from all other sectors with indirect connection with tourism sector.

To test if the effect of tourist flow is the same over the period under analysis (2000-2018), a similar exercise was replicated using interaction terms. Table 23 reports the results with the non-factorial interactions between tourism flow (as endogenous variable) and year dummies. Once we use the predicted value of tourist arrivals in the regression estimation, the standard errors of the employment equation is computed via bootstrapping, based upon 100 bootstrap replications.

Results (Table 23) show some differences in the dimension of the tourism effect on employment between the different time periods, namely in periods of GDP contraction (e.g. 2008/2009 and 2012/2013). To test if these differences are significant, Table 23 reports the results of the t-test for the periods 2008, 2009, 2012 and 2013. Results confirms that in periods with a negative growth rate of GDP the effect of tourism flow on employment tend to be lower. For instance, in 2009, 2012 and 2013, each additional 1,000 tourist arrivals create 3 fewer jobs in comparison with the other periods.

⁽⁴²⁾ We also tested the existence of a non-linear relationship between employment and tourist arrival, results available upon request show that only a linear and positive relationship exist.

⁽⁴³⁾ (942,518,550/1000) * 20.1 = 18,944,623 persons employed.

⁽⁴⁴⁾ Derivative effects include all the indirect and induced effects (also called the 2nd and 3rd round effects) coming from the activities in frontline in the tourism sector.

Table 23. Results of 2-Step OLS estimation with year interaction terms, Linear model, EU25, 2000-2018, dependent variable: Employment (1,000)

Variables	(1)		(2)	
	Coeff.	Std. Error	Coeff.	Std. Error
Tourist arrivals (N° 1,000) - Predicted value	0.0203***	(0.00344)	-	-
Interaction term with tourist arrivals				
Year = 2002	-	-	0.0148***	(0.00434)
Year = 2003	-	-	0.0162***	(0.00463)
Year = 2004	-	-	0.0177***	(0.00440)
Year = 2005	-	-	0.0223***	(0.00471)
Year = 2006	-	-	0.0195***	(0.00569)
Year = 2007	-	-	0.0211***	(0.00478)
Year = 2008	-	-	0.0215***	(0.00532)
Year = 2009	-	-	0.0172***	(0.00434)
Year = 2010	-	-	0.0203***	(0.00390)
Year = 2011	-	-	0.0186***	(0.00408)
Year = 2012	-	-	0.0163***	(0.00366)
Year = 2013	-	-	0.0163***	(0.00440)
Year = 2014	-	-	0.0185***	(0.00366)
Year = 2015	-	-	0.0192***	(0.00322)
Year = 2016	-	-	0.0206***	(0.00334)
Year = 2017	-	-	0.0207***	(0.00283)
Year = 2018	-	-	0.0199***	(0.00328)
Control variables and fixed effects	Yes		Yes	
Year dummy (alone)	Yes		No	
Constant	-9.919	(72.47)	2.109	(75.59)
Observations	3,080		3,080	
R-squared	0.997		0.997	
Wald test	0.000		0.000	
T-test differences between coefficients (p-value)				
Year 2008 versus All remaining years			0.734	
Year 2009 versus All remaining years			0.071	
Year 2012 versus All remaining years			0.317	
Year 2013 versus All remaining years			0.334	
Year 2009/2012/2013 versus All remaining years			0.012	

Data refers to NUTS II (version 2016) and EU minus 2, as Ireland and Lithuania are not included due to missing data at regional level. Control variables refer to GDP, population and education level. Predicted value of tourism demand/flow based on results of Table 21. Bootstrapping standard errors in parentheses, based upon 100 bootstrap replications. Significance level: *** p<0.01, * p<0.1.

Source: Own estimation based on EUROSTAT data.

To control for the existence of economies of scale in regions more specialised/concentrated in tourism services and demand, we re-estimated equation (1) including the non-factorial interactions between tourism flow (as endogenous variable) and a categorical variable for tourism intensity. The threshold for categorical variable was determinate based on percentiles: 5%, 25%, 50%, 75% and 95%. Results (Table 24) show that, on average, the size of effect of tourism flow on employment is the same, except on extremes cases – p(5) and p(95). In regions with very high intensity of tourists per capita, the leverage effect of each additional 1,000 tourists on employment appears to be smaller. This is probably due to the existence of economies of scale in these regions. In the opposite situation, regions with a very low intensity of tourists per capita display a higher leverage effect of tourist flow on employment.

Table 24. Testing differences on tourism effect between regions

Variables	(1)		(2)	
	Coeff.	Std. Error	Coeff.	Std. Error
Interaction term with tourist arrivals - predicted				
Tourism intensity rank 1: <= p(5)	0.0305 **	(0.0133)	0.0291 ***	(0.0105)
Tourism intensity rank 2: > p(5) - <= p(25)	0.0238 ***	(0.0070)	-	-
Tourism intensity rank 3: > p(25) - <= p(50)	0.0222 ***	(0.0054)	-	-
Tourism intensity rank 4: > p(50) - <= p(75)	0.0235 ***	(0.0050)	-	-
Tourism intensity rank 5: > p(75) - <= p(95)	0.0229 ***	(0.0039)	-	-
Tourism intensity rank 6: > p(95)	0.0148 ***	(0.0031)	0.0146 ***	(0.0028)
Tourism intensity rank 7: > p(5) - <= p(95)	-	-	0.0227 ***	(0.0033)
Control variables, year dummy and fixed effects	Yes		Yes	
Constant	-6.140	(62.32)	-8.332	(46.41)
Observations	3,080		3,080	
R-squared	0.997		0.997	
Wald test - H0: all coefficient = 0	0.000		0.000	
T-test differences between coefficients (p-value)				
Rank 1 <i>versus</i> All remaining	0.039		0.039	
Rank 2 <i>versus</i> All remaining	0.973		-	
Rank 3 <i>versus</i> All remaining	0.254		-	
Rank 4 <i>versus</i> All remaining	0.450		-	
Rank 5 <i>versus</i> All remaining	0.936		-	
Rank 6 <i>versus</i> All remaining	0.000		0.000	
Rank 7 <i>versus</i> All remaining	-		0.000	

Data refers to NUTS II (version 2016) and EU minus 2, once Ireland and Lithuania are not included due to missing data at regional level. Control variables refer to GDP, population and education level. Predicted value of tourism demand/flow based on results of Table 21. Bootstrapping standard errors in parentheses, based upon 100 bootstrap replications. Significance level: *** p<0.01, * p<0.1.

Source: Own estimation.

At last, we performed a **Granger** (1969) causality test (Table 25) confirms if that tourism demand/flow does Granger-cause employment using both a linear and log linear model. However, it seems that a bidirectional relationship between employment and tourism also exist, but only when we use the log linear model. The results of the linear model suggest only that the relationship between tourism and regional employment is unidirectional.

Table 25. Results of Granger causality test

Null hypothesis	Linear model ⁽¹⁾	Log linear model ⁽¹⁾
<i>Tourism demand/flow does not Granger-cause employment</i>	9.81***	24.37***
<i>Employment does not Granger-cause tourism demand/flow</i>	0.31	7.87***

⁽¹⁾ Results refers to the F Statistics to test if the coefficients are different from zero, when an Pooled OLS regression including the lagged value of the dependent variable (Y) and the lagged values of X is estimated. Significance level: *** p<0.01, * p<0.1.

Source: Own elaboration.

8.3.4. Scenario-based analysis

Once we have all information related to the tourist-employment relationship, the next step consists of estimating tourist flows for the coming months in the EU, using a Scenario Based-Analysis technique.

Based on the results of recent surveys (see Section II in Appendix), we identified three potential scenarios, described in Section 5.3: i) Confidence to travel scenario: Extended hot long summer; ii) Fear to travel scenario: Escape to wherever; iii) Second wave scenario: Islands of tourism. For each scenario, using information from surveys (Section II in Appendix), we estimated how many tourist arrivals at accommodation establishments will be affected by the COVID-19 outbreak. For instance, from the **EY (2020b)** survey we extrapolated that the willingness to travel for holidays outside the country of residence is expected to fall about 60%. This value was estimated based on the finding that only 10% of Spaniards are willing to travel abroad for holidays (**EY, 2020b**), and comparing this result with the participation of Spaniards in tourism for personal purpose from EUROSTAT. We estimated for 2019 a participation of Spaniards in leisure tourism of about 26% (based on an average 3-year growth of 8% and a value of 24% in 2018). The growth rate between the information coming from the survey and EUROSTAT is equivalent to a drop of 62%. For the present study, this value was rounded to 60%.

We applied a similar reasoning to the other findings from surveys and in the end we projected that, under the “confidence to travel” and “fear to travel” scenarios, tourist arrivals from domestic market can drop between 20% and 40%, whereas the intra-EU tourist arrivals can fall between 35% and 60%. Under the “second wave” scenario these value are incremented by 20 percentage point ⁽⁴⁵⁾. All projections have as a starting point the month of July 2020. In June, we consider half of the value of July, based on the assumptions that some borders are still closed until the middle of the month, travel restrictions are still in place and there is a reduced air transport availability. Regarding Extra-EU, for the “confidence to travel” and “fear to travel” scenarios we used the information from the willingness to travel and government restrictions from US and UK governments (main Extra-EU partners), reported in Table 13 ⁽⁴⁶⁾. For the “Second wave scenario” we assume that Extra-EU travels are not allowed.

Table 26 below displays the estimated changes in tourist arrivals by scenarios. We expected that this value captures the effect of psychological and economic factors, as well as the supply-side conditions, related with mobility restrictions and health/safety measures. Once reduction in tourist arrivals are applied to the value from the previous year ⁽⁴⁷⁾, we are also controlling for the purchasing power of tourists and the size of supply side ⁽⁴⁸⁾. We don't make a distinction between the purpose of the stay (leisure or business), but the estimated change is expected to capture both. Even if information for changes in consumer behaviour for all EU countries is not available, we assume that they correspond to the EU average behaviour.

Table 26. Estimated changes in tourist arrivals, by scenarios

Scenarios	Residence	Estimated changes in arrivals (Starting: July 2020)	Improvement in the willingness to travel (After July 2020)
Confidence to travel scenario: Extended hot long summer	Domestic	-20%	10%
	Intra-EU	-35%	5%
	Extra-EU	-60%	n/a ⁽¹⁾
Fear to travel scenario: Escape to wherever	Domestic	-40%	5%
	Intra-EU	-60%	2%
	Extra-EU	-70%	n/a ⁽²⁾
Second wave scenario: Islands of tourism	Domestic	-60%	2%
	Intra-EU	-80%	2%
	Extra-EU	-100%	-

⁽¹⁾ Not applicable because based on value from Table 13 - Confidence to travel scenario: 60% July/August, 50% September/October and November/December 45%;

⁽²⁾ Not applicable because based on value from Table 13 - Fear to travel scenario: 70% July/August, 60% September/October and November/December 45%.

⁽⁴⁵⁾ Fear to travel in countries most affected COVID-19 improved by about 20 percentage point based on **HES-SO (2020)**.

⁽⁴⁶⁾ Even if information reported in Table 13 refers to Spain as tourism destination, we assume that the willingness to travel outside the home country and the mobility restrictions will be the same for the EU average.

⁽⁴⁷⁾ Because market shows to be stable and with a growth trends in the last years.

⁽⁴⁸⁾ According to scientific literature (e.g. **Lim, 1997; Song & Li, 2008**) the main drivers affecting tourism demand are: i) economic factors, related to purchasing power and travel expenditure; and ii) qualitative attributes of the destination.

To forecast tourist arrivals in 2020, the estimated changes were applied to the arrivals registered in 2019 for the months June to December. Values for January to March 2020 were extracted from EUROSTAT. April and May 2020 were reduced to 10% of the recorded values in the previous month-year, because some indispensable trips are still possible. Posteriorly, based on the estimated tourist-employment relationship we estimated the equivalent level of employment needed to satisfy the foreseen level of tourist arrivals by trimester, taking into account government measures to support employment like “special lay-off” between March and May 2020.

8.4 Benchmark: estimated effect of COVID-19 on tourism industry

Table 27. Estimated impact on tourism industry of COVID-19 crisis: Some previous findings

Author	Geo	Main findings
Statista (2020a)	Europe	<ul style="list-style-type: none"> – Foreseen fall in revenue of 41% (travel and tourism industry) – Predicted employment loss of 13 millions of jobs (travel and tourism industry) in Europe. Germany could be the most affected (1.6 million), followed by Italy (1 million), Spain (0.8 million) and France (0.8 million). – Expected increase in the share of companies at high risk of insolvency of 49% in Italy (overall tourism industry)
ILO (2020)	Worldwide	<ul style="list-style-type: none"> – Estimated of 305 million job losses, many of which are in the tourism sector – Contraction of international tourism economy between 45% and 70% – Domestic tourism is expected to recover faster than the international tourism industry
UNWTO (2020)	Worldwide	<ul style="list-style-type: none"> – Current scenarios point to declines of 58% to 78% in international tourist arrivals for the year, depending on the speed of the containment and the duration of travel restrictions and shutdown of borders, although the outlook remains highly uncertain – About 100 to 120 million direct tourism jobs at risk – Domestic demand would recover faster than international demand. – International demand would recover by Q4 and mainly in 2021 – Progressive decline in international tourist arrivals in Q1 2020, with 57% drop in March and an expected 90% fall in April – Europe was the slowest to return to growth after a crisis 2008/09 (14 months after economic crisis)
Pearce (2020)	Worldwide	<ul style="list-style-type: none"> – Air travel may recover more slowly than most of the economy – Average trip length will fall sharply – Domestic markets open first and initial preference for short trips – International air travel may not recover up to 2019 levels until 2023-24 – Return to growth post-COVID but at a lower level
B&C and EY (2020)	Spain	<p>Accommodation services effect:</p> <ul style="list-style-type: none"> – The sector's turnover could be reduced by 40% during 2020 – Jobs loss could be over 200,000 – About 680,000 jobs will be affected in the worst moments of the crisis – The negative effect on employment will be about 22% and 26% of the annual employment level, achieving a value of potential job losses about 40% during confinement and restricted opening.

Source: Own elaboration based on **Statista** (2020a), **ILO** (2020), **UNWTO** (2020), **Pearce** (2020) and **B&C and EY** (2020).

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List of abbreviations and definitions

COVID	Coronavirus disease
DG	Directorate-General of the European Commission
EC	European Commission
EU	European Union
GDP	Gross domestic product
ICT	Information and Communication Technologies
ILO	International Labour Organization
MERS	Middle East respiratory syndrome-related coronavirus
NACE	Statistical Classification of Economic Activities in the European Community
NUTS	Nomenclature of Territorial Units for Statistics
S3	Smart Specialisation Strategies
S4	Sustainable Smart Specialisation Strategies
SARS	Severe acute respiratory syndrome coronavirus
UNWTO	World Tourism Organization
WTTC	World Travel & Tourism Council

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