

**Macroeconomics**

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**COVID-19 OUTBREAK IN EUROPE
AND ITS IMPACT ACROSS
FOUR DIFFERENT SECTORS:
ANALYTICAL RESEARCH**

Abstract

The ambition of this contribution is to outline how the European perspective – that of economists and social science scholars who have observed and studied Covid-19 in the last 16 months, has been represented in the more popular journals worldwide dealing with Agriculture, Education, Health and Tourism. The first two sectors, Health and Education, have been chosen because of the relevance of the merit goods provided, not only for the present wealth, but for the future development of society. Tourism has been selected because this sector has been savagely devastated by the pandemic due to the necessary restrictive governmental measures imposed to avoid the virus spreading. Agricultural sector plays an important role in the European economy especially for the countries with the lowest income.

The trend found among the considered journals, which were selected out of those with the highest h-index through the search engine Scimago, was to

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publish a few selected contributions or, oftentimes, to dedicate a special issue of the journal to the economic consequences of the pandemic. Since this survey is aimed at summarizing the European evidence, some of the identified studies were not considered, most of them concerning the Asian Far East countries (the geographic area from where the contagion began) and the USA (the country with the highest number of deaths due to Covid-19).

Key words:

COVID-19; European countries; governmental measures; tourism, agriculture, merit goods; SCIMAGO.

JEL: C83, H12, I18, I21, O13, Z32.

4 Tables, 94 references.

Problem Statement

The outbreak of the Covid-19 pandemic at the beginning of 2020 has inflicted tremendous global economic and human burden. Laurence Boone, chief OECD economist, in presenting the OECD report on the 9th of March 2021, showed figures concerning a global recovery. She stressed the possibility and the necessity of speeding up this process by means of quicker vaccination programs. Moreover, she presented evidence on the different ways in which Covid-19 has impacted GDP growth all over the world. If, for example, the USA have already recovered from the losses due to the pandemic in terms of GDP, this is not the case for other regions of the world, including Europe. Understanding what has happened allows us to realize what can, and must still, be done.

A plethora of articles has been published in newspapers and a massive bulk of information has been delivered through the mass media and is available to everybody through the Internet. What has been intriguing the scholars studying the society and the economy during these months in which pandemic has in-

flicted a crucial blow to almost every productive and social sector? A quick search through Google Scholar retrieves an enormous number of contributions devoted to Covid-19 pandemic, nevertheless, a massive amount of publications may be confounding rather than illuminating.

Therefore, this paper aims to review issues related to Covid-19, tackled by humanities scholars and published on the most widely read journals and analyse the works focusing on Europe.

As the impact of Covid-19 on the economy and the society is manifold, we have narrowed our focus to four areas of investigation: Health and Education, providing merit goods; Tourism, highly impacted by the pandemic because of the restrictive measures imposed on gatherings in order to avoid the virus spreading; Agriculture, a primary sector contributing 1.3% to the Europe's GDP in 2019 (Eurostat 2020).

We are aware that our review is not all encompassing, nevertheless it gives the idea of the how European perspective of economists and social scholars concerning Covid-19, in these four relevant areas, is represented in the more popular journals worldwide.

In what follows, we present our review grouping by journals, the latter selected in the first top 10 ranking, for each sector studied. Within each group, we gather the contributions dealing with Covid-19. It is possible to distinguish both works of general nature and studies that focus on the individual dimensions of the subjects studied: the change in the lifestyles of the population determined by Covid-19; the decisions regarding spending and consumption; the propensity to travel; choices about workplace. There are also works of a macroeconomic nature, which show how the production sector has changed because of the health emergency, and studies that examine the effect of government intervention measures aimed at greater stringency.

At the end of every paragraph section devoted to each of the sectors analysed, a table summarises the journals used as source of information, the impact factor and the number of published articles related to Covid-19.

This survey is a good starting point for similar reviews that could be carried out in the next years, and demonstrates how the consequences of pandemic conditions, such as those currently being experienced, can spread globally and persist for many years.

Analysis of Covid-19 Consequences across Different Sectors of Economic Activity

We have performed an accurate comprehensive review of the literature that, presented studies on the impact of Covid-19 during a period of 16 months (January 2020-April 2021). We applied precise criteria in selecting the studies

that could represent the current scenario, which will likely characterize the economic and social life in the next years. Such criteria can be summarized as follows:

1) the selected studies regard specific economic sectors, as specified above. These sectors are the keywords for our research;

2) the selected studies are preferably empirical studies and either concern European countries or contain generalized conclusions applicable to European countries;

3) the selected studies have been retrieved through an online research, carried out using the Scimago Journal Rank, i.e., an indicator measuring the scientific influence of scholarly journals. Since Scimago Journal Rank considers the number of citations received by a journal and the importance or prestige of the journals where the citations come from¹, higher SJR values are meant to indicate greater journal prestige. We considered the first 10 Journals found applying the above-mentioned keywords and treating «Public Health», «Economics, Econometrics and Finance», or «Social Sciences» as subject area and category.

Health

The review concerning Covid-19 and Health considers the top ten journals ranking² sorted from Scimago website under the subject «health»; the major scope of these is not medicine and epidemiology³, but rather public health, environmental and occupational health, health policy. They deal with health from the public health, managerial or economic perspective rather than a uniquely a medical one. These search parameters resulted in one journal (*Annual Review of Public Health*) that had no articles devoted to Covid-19, so we added *The European Journal of Health* to the list (third in the Scimago ranking system when searching for «health and economics» journals, after the *Journal of Health Economics* and *Health Economics* that are already on the list). The Journals retrieved by using the keyword «Health» range from an H index of 282 to that of 53.

The common thread of the major themes tackled by each journal. The majority of the reviewed works assume a public health perspective: public measures taken to prevent the virus spreading; the role of data to tailor appropriate public measures; the impulse to innovation precipitated by the emergency situation; the

¹ A journal's SJR indicates the average number of weighted citations received during a selected year per document published in that journal during the previous three years.

² Last access to the ranking – 17th May 2021.

³ For this reason, for example we have considered the journal *BMC Health Services Research* but not *BMC Public Health* that gives great emphasis on epidemiology

optimal testing policy; unmet health needs and their possible relation with existing socioeconomic inequalities, and the possibility of inequality amplifications; the burden of illness measured in terms of quality - adjusted life - years. Quality of life has also been investigated, addressing the coping strategies of citizens, patient satisfaction, the behaviour and wellness of the health care personnel. There are also papers investigating the reason for reduced demand.

In the review *Environmental Health Perspectives* (H-index 282), on 10 papers sorted by the presence of «Pandemic» and «Covid-19» in the title, it is possible to find a sole contribution by Brauer, Zhao, Bennitt, and Stanaway (2020) that examines public health measures in the age of Covid-19, partially referring to the European context. The authors tackle the issues of preventive measures to circumscribe the spread of the pandemic and estimate the capacity for hand-washing with soap and water for 1,062 sites in the time span from 1990 to 2019. Although the focus is on low-income countries, European estimates are also presented: 2.8%; 3.9% and 0.9% of the population, of Central, Eastern and Western Europe respectively have no capacity for handwashing with water and soap.

Not surprisingly, given its aim and scope, the *American Journal of Public Health* (H-index of 264), largely tackles public health issues connected with Covid-19, with around 200 papers published⁴. Nevertheless, only five of them offer a European perspective.

Chae and Park (2020), using a quasi-experimental difference-in-difference model, study the effect of pecuniary fines to punish violations of the lockdown measures during the period of March 15th – May 11th. They show that the use of such pecuniary measures has allowed the Bavarian counties to further reduce the Rt index (*i.e.* virus's transmission rate at a given time) and the growth rate of the confirmed contagions, by respectively 0.32% and 6%, compared to the counties that did not use such fines.

Pearce, Vandenbroucke, Van der Weele and co-authors (2020), have written an editorial tackling the possible avoidable methodological flaws in treating Covid data. In this context, they suggest that the UK's choice of waiting in order to reach herd immunity and the subsequent choice of abandoning such policy was based on two opposing academic reports. The latter used the same dataset, but offered different conclusions because they set different hypotheses; the fundamental difference between the two reports lay in the estimate of the ratio of undiagnosed people due to absence of symptoms or undertesting.

Saracci (2020) proposes a brief reflection on the damages caused by inconsistency in governmental policies and delayed actions observed in some European countries in terms of deaths and contagions. He gives a brief account of the resurgence of a second wave of the pandemic after August 2020, engen-

⁴ The approximate number was obtained through Google Scholar, as the Journal homepage does not allow a search by titles.

dered by inconsistency and delayed governmental responses driven by the desire to satisfy economic interests that often contrasted with adequate containment measures. He also highlights the inconsistency of the proposed measures (*i.e.* the compulsory use of masks on high-speed trains in France together with their use at full capacity; sundry occupancy rules on trains in diverse Italian regions).

Di Giacomo, Clerici, Peschi and others (2020) present a case study depicting the positive experience of a Lombardy prison (Italy), where the spread of Covid-19 was kept under control by means of security measures (usually prisons are considered Covid amplifiers), and where prisoners' need for special psychological assistance was first recognized, and then satisfied.

Wiessing, Seguin-Devaux and Merendeiro (2021) examine the short term measures taken in order to shelter the homeless people during the pandemic in the USA and in Europe. This was done because of the acknowledgement that being homeless for a long period (which is usually associated with tuberculosis, asthma, bronchitis, and HIV) may worsen the health risk of Covid-19. Moreover, drawing from the already existing international experience, they suggest a long-term response to the housing problem that could transform a moment of deep crisis into an immense opportunity to foster equality.

Searching through all the articles published by *Health Affairs* (H-index 178), using key words «Covid-19» or «Pandemic» for the titles, we have obtained more than 150 results⁵. We have decided to exclude the short commentaries and the blogs, expressing opinions of medical and non-medical scholars on transversal themes related to the pandemic, often in the USA context. Among the scientific articles, only two explicitly envisage European themes or perspective in tackling public health issues.

Sampat, and Shadlen (2021) consider how the Covid-19 shock has changed the biomedical innovation system, discussing how public funding has promoted late-stage product development and manufacturing worldwide. In their contribution they analyse the actions taken by the European Union through the package of loans granted by the European Investment Bank; they also stress the public financing efforts in the production of vaccines made by Germany and UK.

The contribution of Rannan-Eliya and co-authors (2021) chooses a worldwide perspective when investigating the optimal testing policy for Covid-19. In fact, it views 173 nations accounting for the 99% of Covid registered cases in the time span of March-June 2020, including European countries. Their results advocate stronger testing and isolation measures as the least demanding alternatives in terms of economic and life loss.

⁵ The approximate number was obtained through Google Scholar, as the Journal homepage does not allow a search by titles.

The *Annual Review of Public Health* (H-index 144) has not published papers that contain either «Covid» or «Pandemic» in their titles. The *Journal of Health and Social Behavior* (H-index 127) has published three articles, but none of them refer to Europe. *Health Services Research* (H-index 121) has published one article satisfying our search parameters, but it does not endorse a European perspective.

The *Journal of Health Economics* (H-index 124) has published only one contribution satisfying the search parameters – a European study proposed by Bach, Guillouzouic and Malgouyres (2021). The authors have explored and discarded the possibility of a causal relation between elections held in the period of the pandemic (mid-March 2020) and the excess in mortality rates among senior candidates with respects with the male French population aged more than 60 years. They have also found no relation between candidates' mortality rates and the extent of the municipality electoral competition.

In the journal of *Health and Quality of Life Outcomes* (H-index 112), only one out of six matches deals with Europe. It is the investigation on the burden imposed on the population by Covid-19 proposed by Büssing, Recchia, Hein and Dienberg (2020). The authors explore the ways in which people coped with restrictive measures imposed by the German government due to the pandemic. They focus not only on negative feelings engendered but also on the capacity to appreciate the positive aspects of the new experience, such as a closer and more prolonged contact with nature and loved ones.

Health Economics (H-index 104), has published five papers containing either «Covid-19» or «Pandemic» in their title, four of which concern Europe. Additionally, an editorial by Chilton, Nielsen and Wildman (2020) has stressed the worldwide necessity of using the Welfare economics tools to address possible future pandemics with a proactive approach, also considering the European perspective. This on the basis that welfare economics not only uses an inter generation perspective in the maximization of welfare, but it also allows to approach the pandemic as a problem which must be faced considering the contribution (and interests) of diverse stakeholders, entailing resource allocation choices.

This editorial has evidently become the lens used by the contributions published in this journal when tackling Covid-19 pandemic. Alacevich, Cavalli, Giuntella, et al. (2021) consider the relevance of policy choices and the link between the existence of care homes in Lombardy (an Italian region that has encouraged the discharge of Covid-19 patients into care homes) and higher Covid death rates in such facilities. They suggest that the presence of care homes may have contributed to spread the virus. Briggs, Goldstein, Kirwin *et al.* (2021) focus on the estimation of the burden of Covid-19 in terms of quality - adjusted life - year in five countries, including the UK and Norway, offering evidence that conspicuous losses have been registered for the older population. Davillas and Jones (2021a) have amassed evidence of an increasing psychological suffering due to the progression of Covid-19 pandemic in the UK, nevertheless suggesting that

socioeconomic inequality has not been amplified. Still for the UK, the same authors (Davillas and Jones, 2021b) have investigated the link between unmet healthcare needs and wealth during Covid pandemic: reportedly, horizontal equity has been guaranteed with respect to hospital care access but access to GP services has suffered from pro-affluent inequalities in the initial phase of the virus spread. The authors also indicate the permanence of inequalities in getting access to private health care services.

The *BMC Health Services Research* (H-index 101) has 11 contributions related to the European context out of 23 papers dealing with Covid-19 pandemic in terms of public health. Six of these investigate the behaviour and wellness of the healthcare personnel during the pandemic, two contributions deal with patient satisfaction, and three focus on the problem of using and providing health services in a pandemic.

Bontà, Campus and Cagetti (2020), by means of a survey of 2,798 individuals, investigate how Italian dental hygienists, following both national and international recommendations, have adopted safety procedures to face the professional risk ensuing from Covid-19 pandemic. They offer evidence that tenure does not affect the appropriate use of personal protective equipment and adoption of preventive measures. Jovičić-Bata, Pavlović, Milošević, et al. (2021) try to identify and portray variations in the work load and work complexity of 392 community pharmacists in Serbia arisen from Covid-19 pandemic, and to detect the diverse causes of increase in their job-related stress. They suggest the need to acknowledge the frontline role of community pharmacists in providing health care. Khajuria, Tomaszewski, Liu et al. (2021) have conducted an international study of 41 nations based on 2,527 answers of health care workers (35% of which were obtained from the UK) investigating possible correlation to depressive symptoms. They conclude that work environment (protective equipment endowment; job training; psychological support) affects mental wellness. Saleem, Ishaq, Zakar, et al. (2021), by means of a qualitative analysis, examine the conditions of frontline Pakistani physicians working in the UK during Covid-19 pandemic. Results suggest low counseling and psychological support provided to the physicians who had to revert to self-managed coping mechanisms. Missel, Bernild, Dagyan, et al. (2020) have conducted a qualitative analysis of a group of 15 Danish healthcare professionals regarding the experience of waiting for the results of the Covid-19 test. They offer evidence of not only uncomplaining and self-sacrificing work behaviors among professionals, but also of their quest for the provision of more resources, rather than the easy bestowment of public appraisal they have seemingly received from the community. Budnick, Hering, Eggert, et al. (2021) highlight the problem of the caregivers' burden under Covid-19 pandemic in Germany. A survey, on a sample of 1,000 informal caregivers, allows them to evaluate negative feelings and worries connected to the pandemic and to conclusively relate them to levels of caregiver's level of involvement in providing care, due to lack of external support, highly time-consuming activities, severe health problems or dementia.

Patient satisfaction and quality of life have been tackled by Rutsch, Frommhold, Buhr-Schinner, et al. (2021) and by Ladds, Rushforth, Wieringa, et al. (2020). The first describes a research project on rehabilitative care provided after Covid-19 to be implemented in Germany. The second deals with stress and uncertainty in illness suffered by the so-called «long Covid» patients, those experiencing symptoms for more than 3-4 weeks in UK. The latter contribution stresses patients' confusion caused by the diverse and changing symptoms, by the unpredictable relapses after remissions, and by the uncertainty of illness; the feeling of being stigmatized and not fully taken into consideration; needs unmet because of service inaccessibility. It also notes a variability in the standards of provided care and in the centrality of the patients.

Reduction in the health service use is tackled by Conlon, McDonnell, Barrett, et al. (2021), in their qualitative study investigating the reasons for the drop in demand of pediatric emergency healthcare, which, according to them, was partially due to the fear of contracting the virus engendered by an erroneous interpretation of public health messages.

The necessity of rationing the supply of health services is tackled by Cheng, Anderson, Velissaris, et al. (2021). They consider the reduction in the provision of non-emergency surgical interventions in Scotland and suggest a risk stratification tool designed to assign priority levels to patients waiting for cataract surgery, taking into account both individual risk factors related to Covid-19 and patients' needs.

Fillat-Gomà, Coderch-Navarro, Martínez-Carreres, et al. (2020) suggest an innovative response to counteract the shortage of medical equipment. The authors describe how The Parc Taulí Research and Innovation Institute in Spain has contributed to mitigating medical equipment scarcity in the global supply chain by means of 3D printing solutions offered through an online catalogue (accessed 27,861 times, from 113 different countries). Thanks to this project, 22,135 items have been manufactured.

Out of seven papers published in *The European Journal of Health Economics* dealing with Covid-19 pandemic, six concern Europe. Among them, there are two editorials. The editorial of Neumann-Böhme, Varghese, Sabat, et al. (2020) forecasted the recent problems that have indeed occurred in the vaccination campaigns all over Europe. It discusses diverse figures concerning the estimates of the willingness to be vaccinated among the European countries and advises policy makers to consider and prevent the possible vaccine reluctance by means of exhaustive and plain communication campaigns on the effectiveness and the side effects of the Covid-19 vaccines. The second editorial, by Garattini, Martini and Zanetti (2020), speculates on the possible lesson to be drawn from restrictions imposed by the spread of the pandemic and the opportunity for a growing role of the telemedicine in delivering primary care in Europe as a complement to the customary face-to-face medical visits and consultations.

Three of the six papers dedicated to Covid-19 from a European perspective in the *European Journal of Health Economics* investigate the relationship between inequality and the burden imposed by the virus spread on the population, calling for targeted policies aimed at avoiding the increase of inequality.

Amdaoud, Arcuri and Levratto (2021) investigate the spatial heterogeneity in the spread of the virus. Using data from 12 European countries (125 regions), they indicate diversity across and within countries in the severity of the virus spread. They suggest that an aging population, a lower GDP, higher unemployment levels and a lower attainment of the EU objectives are directly correlated with Covid-19 mortality. On the contrary, larger health care resources (number of physicians and hospital beds) and social trust are inversely related to Covid-19 casualties. Wildman (2021) speculates on the relation between income inequality and Covid-19 burden in the OECD countries. He offers evidence of positive correlation between the rise of 1% in the Gini coefficient and, respectively, 4% rise in contagions per million and 5% increase in casualties per million. He shows that European countries had, at least on the date of publication (15th of February, 2021), a higher burden in terms of contagions and casualties. Ginsburgh, Magerman and Natali (2021) have found evidence of the same positive relationship between income inequality and Covid-19 burden in France at the regional level.

In Wang and Flessa's (2020) paper the reference to Europe is offhand, as the authors, at the beginning of the virus outbreak, muse on the problems posed by modelling Covid-19 evolution, suggesting caution in the use of the forecasts obtained. They indicate the ambiguity in the data provided among the causes of unprecise figures, and purport the cases of French and Italian hospitals that did not immediately abide by intensive care official guidelines as example.

Table 1

Health – summary

Journal	H index
Environmental Health Perspectives	282
American Journal of Public Health	264
Health Affairs	178
Annual Review of Public Health	144
Journal of Health and Social Behavior	127
Journal of Health Economics	124
Health Services Research	121
Health and Quality of Life outcomes	112
BMC health services research	110
Health economics	109
The European Journal of Health Economics	53

Education

«Education» is another analysed sector of activity that has been impacted by the pandemic.

Effects of Covid-19, and its consequences on teaching and learning, are summarized in a brief overview by Motiejūnaitė-Schulmeister and Crosier (2020), carried out within a project coordinated by the European Commission (the Eurydice program). Although these reflections do not come from a published study, they deserve to be mentioned to introduce the topic.

Most European countries closed schools as part of their measures to limit contact between people and to slow down the spread of the virus. Albania, Greece, Czechia and Romania and other countries immediately followed Italy, where schools closed on 5 March 2020. The last country to announce school closures was the United Kingdom, where all the schools closed in the second half of March 2020. Learner support was provided in different ways: via books and materials taken from school, through e-learning platforms, with the help of national television programmes or lessons on social media platforms⁶.

The prolonged school closures put pressure on parents, both workers leaving home each day, people working at distance (teleworkers) and even unemployed parents. Further, questions concerning grading and assessment of progress, and the organisation of final exams or national tests became a significant policy challenge. In addition to these concerns, wider societal implications of such arrangements have to be mentioned. Some parents were not in a position to support their children's learning effectively, in this way exacerbating the effects of educational inequalities.

The literature research related to «Education», has examined the 10 top ranking journals in Scimago. The main subject area and category we looked for was «Economics, Econometrics and Finance»; however, concerning educational sector, the area of investigation related to «Social Sciences» was considered too, given the relevance of this research direction for «Education».

The journal with the highest H-index, *Studies in Higher Education*, published an article by Agasisti and Soncin (2020), who examined the impact of Covid-19 on University education in the Italian context. The paper revisits the outbreak of Covid-19 in Italy and particularly in Lombardy region, the first and initially most severely affected area among western countries. First, it provides an overview of the impact of the pandemic in the country and, more specifically in the region, the effects on the national and local economy. Then, it focuses on the

⁶ See, for example, Túniz-López, Vaz-Álvarez and Fieiras-Ceide (2020), or Zacharia and Twinomugisha (2020).

impact on the educational sector by describing an overview of university activities and reporting the actions undertaken by the Politecnico, a technological university located in Milan (Lombardy).

The prominent role of governance and communication in ensuring continuity for students, support for faculty and the redesign of services for the administrative staff has been repeatedly emphasised. A student-centric approach and a high engagement of the entire community are the main elements that brought together the organisation to face a futuristic scenario, where the digital and physical settings coexist.

In this perspective, the journal *Higher Education* has published a study (Watermeyer *et al.*, 2021) reporting the interesting conclusions reached by a survey carried out on more than one thousand academics in the UK universities. Related to a sort of «affliction» for professors caused by the urgency to adapt educational programs and pedagogical roles in times of pandemic, the survey outlines how the switch to digital tools and questions about the expectations from digital learning caused such disfunctionality.

Doubts concerning digital learning are emphasised by the difficulties to validate it or reluctance to consider a CV that includes learning experiences carried out online in medical and nursing schools, for examples, as that implies lack of physical attendance by learners and teachers (see, for example, Shea & Rovera (2021) on the experience of virtual nursing education in San Francisco).

While journals such as *Research in Higher Education*, *Assessment & Evaluation in Higher Education*, *Journal of Education Policy* and *Journal of Educational Research* have not published studies that could fit the research criteria fixed for our survey, other journals presented some works containing generalized reflections about the effects of containment policies. Although they are not empirical, their generalizability makes them worthwhile mentioning.

The *Economics of Education Review* published a study dealing with the impact of SAHO (Stay At Home Orders) on the effectiveness of child care in the United States (Ali *et al.*, 2021).

Higher Education Research & Development, in an editorial by Green *et al.* (2020) discusses the need to re-organize the educational system taking into account the pressures related to teaching in higher schools that raise new questions about the future of learning and teaching, its objectives and sustainability (examining, therefore, the social, psychological, economic and health impacts of the pandemic). This editorial was introduced as a special issue, which collected contributions written in different countries (the US, but also China, Japan, Australia, Hong Kong, South East Pacific Islands, Vietnam, etc.), discussing a range of disciplinary, cultural, and geopolitical perspectives raised by researchers, students, new graduates, professional and administrative university staff and other people involved in teaching-learning activities. Although the contexts are differ-

ent, it is possible to identify common topics. One in particular deserves attention: the shared experience of the pandemic may determine job losses, reduced employment prospects and increasingly uncertain career perspectives; this is true especially for traineeships and classes that require physical involvement.

Varea and Gonzalez Calvo (2020), in a study carried out for Spain and published in *Sports Education and Society*, recognise how physical education practices have become «touchless» and bodies «absent». Hence, physical education teachers have been forced to switch to digital tools. The paper reports the experience of physical education teachers who carried out their responsibilities with new modalities: they were requested to prepare videos, tutorials, physical exercises and other activities online, so that school students could work on them from their homes. Data for this analysis were collected through participant-produced drawings. The results suggest that the mix of emotions experienced during pandemic, i.e. missing the physical contact with students, first of all, may lead to 'losing personal identity'. The conclusions of this study reveal a shift in the way students' bodies are considered. In sports and physical education activities, bodies are perceived as being constituted as «assemblages» because of the lack of direct contact. Hence, teacher education programmes should consider what the long-term consequences in the teaching of physical education because of the pandemic situation might be.

Table 2

Education – summary

Journal	H index
Studies in Higher Education	97
Higher Education	91
Research in Higher Education	80
Economics of education review	80
Assessment & Evaluation in Higher Education	76
Journal of Education Policy	73
Journal of Educational Research	71
Higher Education Research & Development	63
Journal of Nursing Education	61
Sports education and society	59

Tourism

Tourism is an economic sector that has immensely suffered from Covid-19 pandemic, research has therefore largely investigated the demand for tourism services, its determinants, its reactions to the uncertainty generated by the pandemic, its forecasts. It has also studied the financial losses and the non-transient effect of Covid-19 on the tourism sector, the impact of tourism mobility on the spreading of infection, the cross-country diversity in governmental responses, and the job-related stress of workers.

Tourist management (H-index 199) has published only five papers referring to the European setting or using European residents as subject out of a total of 46 papers sorted by the selection criteria of having either «Covid» or «pandemic» in the title.

Crespí-Cladera, Martín-Oliver and Pascual-Fuster (2021) tackle «forecast losses», using two diverse estimate approaches (stress test methodology adopted in the financial sector and a Logit model of bankruptcy). They estimate that 25% – 32% of the Spanish hospitality firms will face financial distress as a consequence of a scenario with revenues reduction of 60% – 80%.

Travelers' «risk/uncertainty perception and behavioural changes» due to the pandemic are studied by four contributions. Piccinelli, Moro and Rita (2021) deal with the airline passengers' major apprehensions, and they suggest that the principal concerns of the airline passengers relate to compensations and cancellations based on the analysis of 639 online observations posted on the Italian National Consumer Union website. Villacé-Molinero, Fernández-Muñoz, Orea-Giner et al. (2021) investigate the perceived risk of travelling to understand why people decide to uphold or drop their travel plans using a sample of 1,075 travellers (44.3% of whom are European residents). They note the major role played by the media regarding both risk perception and travel choices. Pappas (2021) investigates holiday intentions during pandemic on a sample of 385 Greek adults and confirms the findings concerning the relevance of both age and socioeconomic status in affecting the perceived risk and the willingness to go on holiday during Covid-19 through a fuzzy-set Qualitative Comparative Analysis. Zenker, Braun and Gymoty (2021), for example, have conducted both an explorative and a confirmatory factor analysis, using two large samples representing two diverse cultural realities: the North American and Danish one. They deal with the measurement problem by proposing a 5-item measure of travel anxiety engendered by the pandemic.

Annals of Tourism Research (H-index 171) offers eight papers dealing with Europe out of 28 papers tackling Covid-19. Two of these works investigate the cross-country diversity in governmental responses to the Covid-19 pandemic.

The work of Kreiner and Ram (2020) discusses how seven nations, including Italy and Austria, have only partially followed the recommended strategies of the United Nations World Tourism Organization in facing the pandemic. They highlight, for example, that Italy has endorsed two out of the seven actions encompassed by the strategy *Managing the Crisis and Mitigating the Impact*, while Austria has endorsed none. Looking at a strategy defined as *Providing stimulus and accelerating recovery*, Italy embraces four actions out of nine, while Austria – only one. Choquet and Sam-Lefebvre (2021) conclude that no common strategy has prevailed in Europe in terms of government responses of coastal states to the threat Covid-19 posed to cruise ships.

The remaining six papers published in *Annals of Tourism Research* deal with the demand for tourist services and the demand forecasts in time of the pandemic.

Bulchand Gidumal and Melián González (2020), investigate variations in ticket purchase choices by studying a sample of air travelers from Spain. Their findings indicate that 28% of the people interviewed declared the intention to postpone their ticket purchase to a date closer to the departure day in response to the perceived increased risks caused by the pandemic.

Liu, Vici, Ramos, et al. (2021) propose a model of tourist demand for 20 international touristic attractions (among which destinations located in Sweden, Finland, Czech Republic, UK and Bulgaria), controlling for the severity of governmental restrictions. The authors argue that the pace and the extent of recovery hinges on the distance of the country of origins of the travelers.

Kourentzes, Saayman, Jean-Pierre, et al. (2021) provide demand forecasts for the following macro regions: Africa; North Africa; South America, North America; South Asia; East Asia; West Europe; Oceania; the interregional flow of tourism (among the European regions: UK; Czech Republic; Germany; Italy; France; Ireland; Spain; Denmark; Norway; Sweden; Bulgaria; Greece; Romania; Finland). They suggest that the recovery will be quicker for intraregional travel than for the interregional one.

Qiu, Wu, Dropsy, et al. (2021) forecast travel demand across 20 countries (encompassing the same 5 European regions studied by Liu et al., 2021) by means of a two-stage (ex post and ex ante) forecast. They suggest three scenarios, depending on the starting date of the recovery and its length.

Zhang, Song, Wen et al. (2021) suggest potential patterns of tourism recovery in Hong Kong using econometric and judgmental methods. They highlight the necessity of time to rebuild traveler confidence and distinguish the differences among European markets (for example, travellers from UK are more likely to restart travelling as soon as possible to Hong Kong, due to established family ties in this country).

The study of Yang, Altschuler, Liang et al. (2020) proposes the development and calibration of the Covid-19 tourism index, aimed at assessing diverse facets of the impact of the pandemic on tourism at the country level, to be used in order to gather information concerning possible patterns of recovery. The index is also applicable and calculated for the European countries.

Journal of Travel Research (H-index 132) has published one paper (Farzanegan et al., 2021), in which the European perspective is taken into consideration (9 papers total sorted by «Covid-19» or «pandemic» in the title). This work deals with mobility effects due to tourism and the spreading of infection. Using the data provided by the European Centre for Disease Control and Prevention on daily figures of contagions, deceases and deaths for 90 countries, it offers evidence of a positive relation between the cumulate frequencies of infected and dead people by the end of April 2020, and international tourists mobility (controlling for different areas: EU & Central Asia; East Asia Pacific; Middle East & North Africa, Sub-Saharan Africa). It estimates that a 1% increase of inbound and outbound tourism is associated with rises of 1.2% and 1.4% of contagions and deaths.

The *Journal of Sustainable Tourism* (H-index 103) presents two contributions regarding Europe out of 13 satisfying our research criteria. Both studies focus on the determinants of travelers' demand. Chua, Al-Ansi, Lee et al. (2020) explore the major determinants of North American travelers' willingness to visit Europe and Asia again by means of structural equation modeling. They suggest that pecuniary incentives are not sufficient to create attachment to a touristic site, which on the other hand are highly dependent on the Corporate Social Responsibility of the travel companies and the perceived effort in the response of the destination country. Gallego and Font (2020) suggest the use of big data in order to ascertain the major determinants of the tourists' demand during Covid-19. By analyzing more than 5,000 million searches and more than 600 million selections of flights in the time span of 23 months (last period of study is December 2020), they find that searches for European destinations have dropped by around 30% and that the selected flights have suffered a further decline of 10-20%. They also offer a detailed description of the air travel demand (search and effective selection of flight) for Spain, distinguishing by several European markets of origin.

Current Issues in Tourism (H-index 74) offers 60 works satisfying our research criteria, 14 of which refer to Europe and 12 deal with demand issues and travellers' perception of risk or uncertainty due to Covid and their behavioural changes due to the pandemic.

Dube, Nhamo, and Chikodzi (2020), using the Open Table platform, on a sample including among other countries, Germany, Ireland and UK, tackle the effects of Covid-19 pandemic on the restaurant sector and show that the on-site presence of restaurant customers has been completely eliminated. Diverse governmental support actions are therefore suggested.

Ahmad, Jamaludin, Zuraimi, et al. (2020) show the mediation effect of the destination image of Malaysia (concerning tourists' perception of Malaysia as a safe site and its capability of circumscribing crises in time and space) on the relation between visit intentions and physical factors (related to climate; accessibility; transport) on a sample of 426 respondents, 247 of which European travelers.

Sánchez-Cañizares, Cabeza-Ramírez, Muñoz-Fernández et al. (2020) use PLS-SEM modelling on a sample of Spanish residents to evaluate the relationship between the perception of the risks related to Covid-19 and their travel intentions, and how, on the other hand travel intentions influence the willingness to pay in order to reduce the above mentioned risks.

Falk and Hagsten (2020), using a gravity model, investigate the increase of Covid-19 contagions in Denmark, Norway and Sweden due to the resident travelers getting infected in in the European Alps (the largest number of Scandinavian people has been infected in Austria and Italy). The authors also offer evidence that travel restrictions matter in order to tame the virus spreading, as they argue that the bulk of contagions have been recorded during the second week of March 2020, hence the infections have occurred before the imposition of travel restrictions.

Chemli, Toanoglou and Valeri (2020) use a large sample obtained from more than 12 countries (Spain, Italy, France, UK and Greece) and 4 continents to offer evidence of the major role played by the media, in forming travelers' awareness concerning the potential risks ensuing from to the pandemic. By means of a multilevel model, they also show that travelers' awareness is positively influenced by their perception of the risk concerning the physical dimension.

The issue of risk perception among travelers in Germany, Austria, and Switzerland is also tackled by Neuburger and Egger (2020) at the beginning of March 2020. The authors point out a dramatic increase in the perception of risk of traveling due to Covid-19 in the time span of a few weeks, and that perception impacts travel behavior in terms of willingness to cancel travel already planned, avoiding trips by plane, by train, etc.

Peluso and Pichierri (2020) investigate the crossover between socio-demographic subjective sense of control and capability to prevent Covid-19-related uncertainty, and travel intentions of a sample of Italian residents. They show, by means of a structural equation model, that aged and less healthy people suffer the most from the uncertainty caused by Covid-19 and express fewer intentions to travel at the end of the pandemic. These results are confirmed by another study of the same authors (Peluso & Pichierri, 2021), in which the authors also show a negative correlation between perceived uncertainty and vacations aiming at relaxation rather than adventure.

Aiello, Bonanno, and Foglia (2020) deal with the perceived risk of travelling due to Covid-19 as well. They have studied the relation between low contagion

areas, internal area, allowing the possibility of proper social distancing, and the demand for hospitality in B&B and hotels during the first peak of the pandemic in Italy.

In a similar vein, in a work published in November 2020, Vaishar and Šťastná (2020) investigate the diverse impact of Covid-19 on rural versus urban destinations for Czechia: while the former have suffered from the decline of foreign demand, the latter still attracted resident travelers.

Marques, Guedes and Bento (2021) offer similar results for Portugal touristic areas, experiencing strong and steady recovery in the number of internal customers.

Sánchez-Pérez, Terán-Yépez, Marín-Carrillo et al. (2021), investigate the changes in Spanish tourists' choices as a response to Covid pandemic, suggesting a reduction of travel intentions, popularity of local destinations and variation in departure dates, reduced utilization of public/shared transportation and frequent engagement of insurances services.

The last two contributions published by the *Journal of Sustainable Tourism* deal, respectively, with employee's wellbeing and system resilience. Karatepe, Saydam and Okumus (2021) address the former by investigating the deleterious impact of the pandemic on hotel personnel's mental health in Turkey. The authors show that exposure to Covid-19 infection largely affects workers' mental wellness by means of structural equation modelling. System resilience is addressed by Ntounis, Parker, et al. (2021), who delve into the perception of resilience in the context of Covid-19 crisis among tourism related trades in British municipalities in order to ascertain intra and inter industry determinants of the resilience level.

None of the four papers extracted from the *Journal of Travel and Tourism Research* (H-index 58) refer to Europe.

Only 5 out of the 11 papers matching our search criteria published in *Tourism Economics* (H-index 58) encompass a European perspective.

Among them, one contribution (Boto-García & Leoni, 2021) investigates the determinants of travelers' intentions. The authors use three diverse estimation tools to compile evidence on the positive relationship between the Spaniards' intention to travel during summer 2020, personal experience with Covid-19 contagion, and the degree of mobility limitations imposed in the area of residence. Hence, the fall in tourism demand notwithstanding, the higher the Covid-19 exposure, the higher the desire to travel (due to movement restrictions between countries and reduction of earnings on travel demand).

The remaining 4 papers focus on «forecast losses due to the pandemic». First, Mariolis, Rodousakis and Soklis (2020) calculate the multiplier effects of the tourism flow reduction due to the pandemic on macroeconomic indicators in

Greece. They suggest that a reduction of foreign tourism receipts of 3.5 – 10.5 billion euros would cause a 2.0% – 6.0% reduction of GDP, a 2.1% – 6.4% increase in unemployment and an upsurge of the trade balance deficit of 2.4 – 7.1 billion euros.

Second, Payne, Gil-Alana and Mervar (2021) use a recursive fractional integration model and offer evidence that the ominous effects of Covid-19 on arrivals from abroad and demand for Croatian hospitality services will be long lasting. Third, Gil-Alana and Poza (2020), with reference to Spain, tackle the non-transient effects of the pandemic on the tourism market. They offer evidence of the existence of a non-reverting process, using day-to-day figures of five equity markets by means of a strong dependence model.

Fourth, Lin and Falk (2021), using a Markov regime switching model, suggest that the stock market of Denmark, Finland and Sweden showed higher idiosyncratic risk assessed as volatility, if compared with the global market of the travel industry during the recovery phase of the first pandemic wave.

There is only one work matching our research parameters and referring to Europe in the *International Journal of Tourism Research* (H-index 58). Williams (2021) uses the 2019 Eurobarometer survey data to estimate a 0.6% moonlighting rate among European touristic workers. He stresses that this already vulnerable labour category is further damaged by job losses due the pandemic, as the workers cannot obtain governmental economic support because it requires disclosure.

No paper published in *Tourist Studies* (H-index 47) matches our criteria.

Table 3

Tourism – summary

Journal	H-index
Tourism Management	199
Annals of Tourism Research	171
Journal of Travel Research	132
Journal of Sustainable Tourism	103
Current Issues in Tourism	64
Journal of Travel and Tourism Marketing	73
Tourism Economics	58
International Journal of Tourism Research	58
Tourist Studies	47
Tourism Recreation Research	44

Two papers out of 15 selected from *Tourism Recreation Research* (H-index 44) make explicit reference to Europe. They both take into account the perspective demand that providers need to consider. Maditinos, Vassiliadis, Tzavlopoulos et al. (2020) enquire as to the major reasons for apprehension engendered by Covid-19 and the consequential decisions to participate in sport events, using a sample of 621 Greek runners. They present data about the concerns of travelling abroad during the pandemic, the necessity of using public transportation, together with the fear of the risks related to events assembling massive crowds. Mehta, Kumar and Ramkumar (2021) investigate hotel customer satisfaction during the pandemic by means of a metric based on sentiment analysis. They suggest that the capability of the structure to respond to the pandemic is one of the major reasons of low satisfaction. They suggest that European and US hotels have the requisites to respond to customers' expectations.

Agriculture

The Journals retrieved by using the keyword «Agricultural» range from 104 to 20 in terms of the H-index. The *American Journal of Agricultural Economics*, which has the highest H-index, has dedicated a special issue to the effects of Covid-19. None of the contributions published, however, regard European countries; rather, they draft conclusions for the US market or for other foreign countries. A similar trend is followed by *Agriculture Economics*, which looks at Far Eastern Asian countries or African countries.

The *European Review of Agricultural Economics* pays attention, surprisingly, to the impact of Covid-19 on South American countries (Fliebsbach & Ihle, 2021), explaining the synchronisation between the prices of many agricultural commodities. The authors propose a framework within which spikes in global prices of agricultural products may be explained by co-movements in prices of commodities. This hypothesis is illustrated by an application developed for South American countries such as Brazil, Chile and Uruguay.

The *Journal of Agricultural Economics*, the *Australian Journal of Agricultural and Resource Economics* and the *Journal of Agricultural and Resource Economics* (with H-indices of, respectively, 56, 46 and 45) have neither relevant contributions about Covid-19 carried out in Europe, nor contributions whose findings could be generalised and, hence, applied in another context. However, the *Canadian Journal of Agricultural Economics* (H-index of 35) published some empirical studies aimed at outlining the agrifood market and economic policy situation after 1 year of Covid-19 pandemic and the implementation of food assistance programs (Orden, 2021; Hobbs, 2021). Although such analyses are carried out for Canada and United States, they stress the changes that occurred in agrifood supply chains, which now require a realignment: while, for the most part, food supply chains have

performed remarkably well during the pandemic, the most significant disruptions emerged from workforce outbreaks of Covid - 19 in the meat-processing sector and in fruit and vegetable production. The strategy proposed to overcome crisis periods suggests focusing investments on adaptability and flexibility, which may enhance resilience in abnormal times (potential long-run changes include increased automation and digitalization in food supply chains).

Gray and Torshizi (2021), who see innovation in food supply chain as correlated with innovation and transportation, discuss a similar topic: the latter, in fact, have proven to be extremely robust and were able to innovate in real - time to address arising challenges. Further, new cost - saving technologies, networks, and channels of communication developed to address the pandemic, are likely to remain in place post pandemic. Forward proposals for reform were discussed within the Ottawa group of 13 World Trade Organization members (Kerr, 2021). This last contribution and others, included in the 2020 *Special Issue: Covid - 19 and the Canadian agriculture and food sectors: Thoughts from the pandemic onset* (Issue Edited by Alan P. Ker Ryan Cardwell), discussed specific contributions aimed at examining potential effects of Covid-19 for different markets and products.

The *Agricultural and Resource Economics Review*, with H-index of 27, concentrates again on carrying out empirical studies on the agricultural sector, not looking at crops and consumers' reactions, although such studies are mainly related to US, where economic losses are estimated for given areas of the country (as in Wahdat et al., 2021).

Even the last journals quoted, *Agricultural Finance Review* and *Agricultural Economics (Czech Republic)* have no papers about Covid-19 with regards to Europe, which made examination of other studies, even those published by online journals, prudent. Hence, we chose papers from publications not in the ranking of the 10 journals with the highest Scimago H index – and signaled through the Journal Citation Reports⁷, which describe the impact of Covid-19 and those consequences of it that are likely to condition several sectors of economic activity.

Hoogenboom (2021) describes the possible, often underestimated, consequences of a shock event on the overall activity of research: a shock such as the one provoked by the Covid-19 'freezes' experimental research programmes worldwide. Alternative opportunities to continue the scientific research about agriculture, already started, might consider the possibility to use data that have already been collected by other scientists. The author stresses how, although this process is already popular in the field of medical sciences, it is going through a very slow adoption in agricultural sciences: the reasons being that, traditionally, agricultural research is rather conservative, does not boast financial or personnel resources, rewards and incentives, or computer infrastructure and software tools for implementation.

⁷ See www.clarivate.com.

During lockdown period, experiments in growth chambers, greenhouses and research plots were abruptly terminated, as scientists were not allowed to enter research facilities and most granting agencies did not provide additional financial support to extend research programmes when scientists had limited access to their research facilities.

In this light, there have been several new and innovative initiatives associated with agronomic research data within the FAIR⁸ (Findable, Accessible, Interoperable, and Reusable) guiding principle for scientific data management and stewardship: this initiative means that research data can be found and accessed from a public database and that they can be easily retrieved in their original or semi-processed format and used for new applications.

With the mandate for Open Data by governments among which there is UK (data.gov.uk), European Union (data.europe.eu), and many others, it is expected that research data collected through public and private funding will become more readily available; in this perspective, the submission of data to data repositories might allow further research in support of future agricultural science.

The Covid-19 pandemic revealed that agriculture is vulnerable to external disturbances. However, three potential mechanisms may mitigate the impacts of major crises or disasters in agriculture: resilience-promoting policies, community marketing schemes, and smart farming technology.

These strategies are discussed in the work of Lioutas and Charatsari (2021). The authors stress that some governments have taken a series of remedial measures to protect agriculture from the oncoming crisis, e.g. Canadian government and the United States of America, where a \$19 billion fund (the Coronavirus Food Assistance Program) has been launched, and the European Union, where a series of «Exceptional measures» have been announced, although farmers claim that these initiatives are too small-scale to help them in overcoming the crisis. Retail schemes have been modified and further initiatives should be proposed worldwide to facilitate exchanges, especially for people living in remote rural regions, the elderly consumers, disabled consumers who have seen increased mobility restrictions and additional limitations, because of the limited number of customers often allowed in-store due to local or national restrictions. In this scenario, smart farming technologies are a set of tools aimed at leading to agri-food systems transformation by improving farm efficiency.

Other studies examined the impact of Covid-19 on labour in agriculture in Europe. Cortignani, Carulli and Dono (2020) highlight that the restrictions to movements limit both temporary labour that is already within the national territory, and the arrival of other foreign workers to be engaged mainly in the harvesting of crops. In Italy, temporary workers are mainly immigrants that must be available for very different tasks, interacting with multiple farms and moving be-

⁸ See <http://www.datafairport.org/>

tween different areas of the country. The reduced mobility of this workforce within the national territory decreases its availability in local labour markets with worrying damage to agricultural production. The authors observed farms in Central and Southern Italy, recording the expectations of farmers about the temporary labour availability: negative expectations were mitigated by modifying the crop type and expanding the crops that could allow the use of family labour and permanent employees. Overall, the farm types that heavily depend on temporary labour for certain crop operations have faced appreciable income level reductions.

The need to intervene into the supply chain, in an even more sustainable perspective, has been considered for UK by Garnett, Doherty and Heron (2020). Insufficient capacity in domestic food production, just-in-time supply chains and Brexit-related labour market challenges have weakened the UK's food system. In fact, the UK imports almost half of its food and 84% of that is from the European Union countries, such as Spain for vegetables and salads, Italy for pasta. There is a need for a strategic plan that would focus on sustainability for the UK food system, which requires investments into British horticulture and diversification of crop types.

In this perspective, an interesting example is provided by Tougeron and Hance (2021), who consider the market of apples – the most harvested and exported fruit in Europe. National governments, European institutions, the industry and producers have undertaken actions to ensure production and supply since demand for fresh apples has increased during the pandemic.

Table 4

Agriculture – summary

Journal	H-index
American Journal of Agricultural Economics	104
Agricultural Economics	75
European Review of Agricultural Economics	57
Journal of Agricultural Economics	56
Australian Journal of Agricultural and Resource Economics	46
Journal of Agricultural and Resource Economics	45
Canadian Journal of Agricultural Economics	35
Agricultural and Resource Economics Review	27
Agricultural Finance Review	21
Agricultural Economics	20

Further, European apple orchards usually belong to more flexible small-holder or family farms, and the fruit itself has relatively long shelf-life comparatively to other fruits. For these main reasons, although the apple sector might be more resilient than other fruit sectors, it may suffer more from side-effects such as increasing labour, distribution, and packaging costs. Yet, these first preliminary conclusions call for a redefinition of single market sectors according to a combined strategy.

In summary of these reflections on agriculture and effects of Covid-19, implications are particularly evident especially for rural economies (see, for example, Phillipson et al., 2020), food chains, and interaction with the labour market. European institutions, therefore, have to consider this sector among the priorities for intervention.

Conclusions

This study aims to synthesize the major papers considering the European perspective that outline the effects of Covid-19 pandemic in four relevant sectors of socio-economic activity: Health and Education, offering merit goods; Tourism, which has greatly suffered from the virus spread and the related governmental restriction measures; Agriculture, a frail sector because of its propensity for seasonality and lack of labour resources due to the necessary restrictive measures.

The Health section of this review revealed many relevant issues, including the necessity of good quality data to tailor appropriate public measures and the need for consistency among governmental policies that must be designed considering the contribution and interests of diverse stakeholders. In this perspective, attention must be given not only to the needs of the more vulnerable population but also to the impact of the psychological burden and high workload on the healthcare workers and informal caregivers, as well as the impact of uncertainty of illness on Covid-19 patients. However, Covid-19 has not only engendered negative feelings. It has also raised the capacity to appreciate a closer and more prolonged contact with nature and a person's loved ones. Moreover, the Covid-19 shock has changed, in some cases, the biomedical innovation system, turning a threatening situation in an opportunity.

These considerations are important because the Covid-19 pandemic is not tamed yet and the more we know the better we can face it, taking into account the presence of diverse stakeholders in planning its downfall, but also because other possible similar situations cannot be excluded in the future, and we must learn from history. When in 2020, before the start of any vaccine campaign, Neumann-Böhme, Varghese, Sabat et al. forecast the possibility of vaccine reluctance and advised governments to undertake exhaustive and plain communica-

tion campaigns, they offered a good example of the extent to which scholars may guide policy.

The contributions on the effect of the pandemic on the Education sector expound upon the need to develop resilience strategies so both teachers and students can adapt to the changed conditions of when the totality of teaching was carried out remotely, including, in some cases, internships and exams. The content and objectives of the educational programs have changed, just as the potential of the network has been explored.

The section devoted to the Tourism literature allows us to conclude that this sector has greatly suffered from Covid-19 pandemic because of travel restrictions. Research has therefore investigated the relevance of travel restrictions in order to tame the virus spreading; it has largely dealt with the determinants of the demand of touristic services and its reactions to the uncertainty generated by the pandemic, as well as forecasts. The role of uncertainty has proved to be paramount in creating a fear of travelling. Thus, it follows that travelers' confidence must be rebuilt through dissemination of information about the destination not only in terms of safety, but also its capability of circumscribing crises in time and space. Other issues have also emerged, including the financial losses and the non-transient effect of Covid-19 on the tourism sector that call for strong governmental response.

Concerning the Agriculture sector, the literature suggests that it is necessary to monitor the implementation of assistance programs, which should, above all, support employment (conditioned by restrictions on the mobility of workers) and improve logistics (products characterized by seasonality should be able to reach as many markets as possible quickly, to avoid significant losses).

We intend to replicate the analysis in the future, to verify what other consequences have arisen from the pandemic (long term) together with the economic recovery that is expected to occur thanks also to the vaccination campaign in Europe, which is currently proceeding in most countries.

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