

PANDEMICS, TOURISM AND GLOBAL CHANGE: A RAPID ASSESSMENT OF COVID-19

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ABSTRACT:

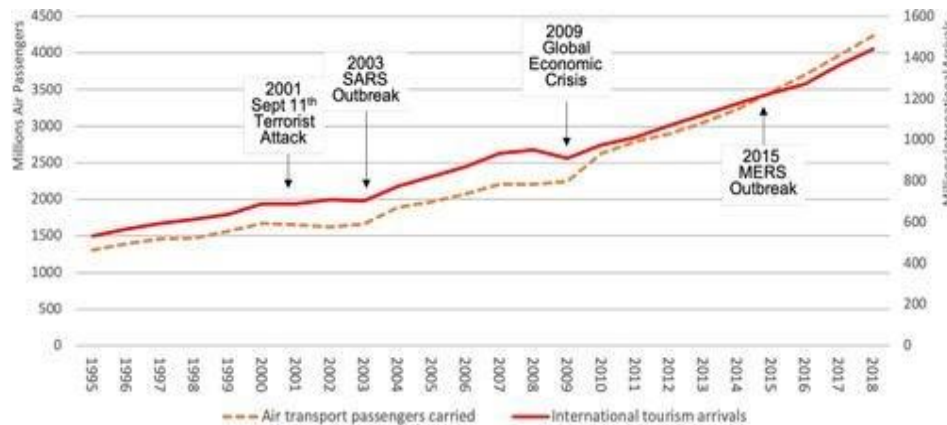
COVID-19 is challenging the world with limited amount of vaccine and medical capacity to treat the disease, out of the ordinary global travel restrictions and lockdown orders are causing the most severe disturbance to the global economy. While forbidding the international travel has affected over 90% of the world population, widespread restrictions on public gatherings and community mobility, tourism has largely come to an end in 2020-2021. Impacts on air travel, cruises, and accommodations have become highly distractive. The tourism industry has been massively affected by the spread of corona virus, as many countries have introduced travel restrictions in an attempt to contain its spread. The paper compares the impacts of COVID-19 and other types of global crises and reconnoiter how the pandemic may change society, the economy, and tourism. It discusses why COVID-19 is an analogue to the on-going climate crisis, and why there is a need to question the volume growth tourism model advocated by UNWTO, ICAO, CLIA, WTTC and other tourism organizations

INTRODUCTION:

Pneumonia of unknown cause detected in Wuhan, China, was first reported to the WHO Country Office in China on 31 December 2019. In early January 2020, 41 patients with confirmed infections by a completely unique coronavirus (COVID-19) had been admitted to hospitals in China (Huanget al., 2020). Even though the virus spread rapidly within the country's Wuhan region was initially largely disregarded by political leaders another parts of the planet (although intelligence services issued warnings of potentially cataclysmic event; Washington Post, 2020). To contain the virus, Wuhan was put into lockdown (a combination of regional and individual quarantine measures), and case numbers in China stabilize around 80,000 by mid-February (ECDC 2020). By then, global air transport had already carried the virus to all or any continents and, by mid-March, it had been established in 146 countries. The number of confirmed infections worldwide quickly doubled, linked to several super-spreading events, like the ski destination Ischgl in Austria (Anderson et al., 2020; Johns Hopkins, 2020). From here, the infection rate accelerated through community transmission and, by 15 April, confirmed cases approached 2 million (with over 125,000 deaths) in over 200 countries (ECDC 2020). The real total number of cases remains unknown as testing is limited in most countries. With no vaccine to prevent the disease and limited medical interventions available to treat it, most countries responded with various forms of non-pharmaceutical interventions (NPI), including lockdown (home isolation, voluntary/required quarantine), social distancing (vulnerable or entire populations), closure of schools/universities, and non-essential businesses/workplaces, canceling or postponing events (i.e. major conferences and trade shows, concerts and festivals, political debates and elections, sports seasons and therefore the summer Olympics), and bans on gatherings of people over certain numbers. Pandemics, tourism, and global change. It is important to note that global tourism has been exposed to an honest range of crises within the past (Figure 1). Between 2000 and 2015, major disruptive events include the 9/11 terrorist attacks (2001), the severe acute respiratory syndrome (SARS) outbreak (2003), the worldwide economic crisis unfolding in 2008/2009, and thus the 2015 Middle East Respiratory Syndrome

(MERS) outbreak. None of them led to a longer-term decline within the worldwide development of tourism and a couple of them are not even notable in Figure 1, with only SARS (-0.4%) and therefore the globaleconomic crisis (-4.0%) resulting in declines in international arrivals(World Bank 2020a, 2020b). this is able to suggest that tourism as a system has been resilient to external shocks. However, there's much evidence that the impact and recovery from the COVID-19 pandemic will be unprecedented.

Figure 1. Impact of major crisis events on global tourism. Data source: World Bank (2020a, 2020b).



The relationships between pandemics and travel are central to understanding health security and global change (Burke, 2006). Although tourism research has developed a minimum of a cursory realization of the potential systemic effects of worldwide global climate change, there has not been the same appreciation of the systemic effects of pandemics, with studies tending to specialize in individual country impacts, rather than the system-level challenges and vulnerability. Several studies have demonstrated the important role of aviation in accelerating and amplifying propagating influenza and coronaviruses (see Brown et al., 2016 for a review). However, to an extent the increase and fall of academic interest within the relationship between tourism and pandemics is reflective of that of the broader industry and also governments, as long as tourism has been suffering from disease outbreaks numerous times since the turn of the millennium. Most significantly, there are several warnings that pandemics posed a serious threat to society and tourism from both tourism (Gössling, 2002; Hall, 2006, 2020; Page & Yeoman, 2007; Scott & Gössling, 2015) and health researchers (Bloom & Cadarette, 2019; Fauci & Morens, 2012), also as government agencies (National Academies of Sciences, Engineering, and Medicine, 2017, 2018) and institutions (Jonas, 2014; International Bank for Reconstruction and Development, 2012).

The main reasons for the increasing pandemic threat within the 21st Century are: a rapidly growing and mobile world population; urbanization trends and the concentration of people; industrialized food production in global value chains; increased consumption of higher-order foods including meat; and, the event of worldwide transport networks acting as vectors within the spread of pathogens (Pongsiri et al., 2009; Labontet et al., 2011). Disease outbreaks like SARS, Ebola, Marburg, hanta virus, Zika, and avian influenza are all outcomes of anthropogenic impacts on ecosystems and biodiversity (Petersen et al., 2016; Schmidt, 2016; International Bank for Reconstruction and Development, 2012). As Wu et al. (2017, p.18) noted,

“High-risk areas for the emergence and spread of communicable disease are where wild disease reservoirs, agricultural practices that increase contact between wildlife and livestock, and cultural practices that increase contact between humans, wildlife, and livestock [intersect]”. As a result of global change, the speed at which major epidemics and pandemics occur has been increasing. It is generally recognized that the twentieth century experienced three pandemics. The so-called ‘Spanish’ flu or influenza of 1918-19; the ‘Asian’ flu (H2N2) of 1957 and the ‘Hong Kong’ flu of 1968. The twenty-first century has already experienced four pandemics: SARS in 2002, ‘Bird flu’ in 2009, MERS in 2012, and Ebola which peaked in 2013-14, with the rise in pandemic outbreaks since 2000 believed to be strongly associated with the worldwide change factors noted above (Coker et al., 2011; Greger, 2007; Wu et al., 2017).

The SARS outbreak in 2003 was defined as a plague by the WHO, with most cases in China and Hong Kong and with clusters of cases in Taiwan and Canada also. SARS has been studied from a tourism context. Siu and Wong (2004) reported that the general economic impact for Hong Kong wasn't as severe needless to say, but that travel, tourism, and retail were substantially affected as a result of the short-term decline in visitation. SARS had an overall estimated global economic cost of US\$100 billion, and US\$48 billion in China alone (McKercher & Chon, 2004; Siu & Wong, 2004).

In 2009, swine influenza has defined as an epidemic but was a comparatively mild event. Nevertheless, the 2009 swine influenza pandemic resulted in approximately 284,000 deaths worldwide (Viboud & Simonsen, 2012). Russy and Smith (2013) examined the consequences of the pandemic on tourism in Mexico, suggesting that losing almost 1,000,000 overseas visitors over five months translated into losses of around US\$2.8 billion, with European markets being the slowest to return. Keogh-Brown et al. (2010a, p.453), observed, “the current pandemic has not removed the threat of a more virulent avian flu pandemic shortly. [...] the importance of pandemic planning is plain”.

Two other pandemics were active at the time of the emergence of COVID-19. The primary is that the highly lethal MERS, a viral respiratory illness caused by a corona virus (MERS-CoV), identified in Egypt in 2012 (Berry et al., 2015). MERS has received significant attention within the travel medicine literature due to the massive number of individuals who engage in the annual hajj pilgrimage to Saudi Arabia (Al-Tawfiq et al., 2014). The second is Ebola, which has a mean death rate of roughly 50% across the various waves of the disease (Chowell & Nishiura, 2014). The primary outbreak occurred within the Democratic Republic of Congo (DRC) and Sudan in 1976 with subsequent outbreaks occurring in West Africa in 2014-16 and therefore the DRC in 2018-19. The Ebola outbreak has been recognized as creating wider uncertainty and negative perceptions for African destinations that were unaffected by Ebola (Maphanga & Henama, 2019; Novelli et al., 2018). The Ebola and MERS outbreaks were significant in raising awareness on the threat of global pandemics, albeit that threat wasn't recognized or acted upon outside of these concerned with health security. As Fan et al. (2018, p.129) observed, “Few doubt that major epidemics and pandemics will strike again and few would argue that the planet is satisfactorily prepared”, and, since the Ebola outbreak, “the US National Academy of Medicine and a number of other groups have pointed to gaps and therefore the need for greater investment, in preparation against epidemics and pandemics”.

One of the central realizations of research on pandemics is that travel is central to epidemiology and disease surveillance (Hon, 2013; Khan et al., 2009). This also means recognizing that travel and tourism is both a contributor to disease spread and its economic consequences and is dramatically suffering from it due to NPIs (Nicolaides et al., 2019). As Baldwin and Weder di Mauro (2020, p.11) suggest, “The harsh reality is that we've no 21st-century tools to fight COVID-19. There is no vaccine or treatment. All we've is that the methods that were used to control epidemics within the early 20th century. Those, as we shall see, tend to be very economically disruptive”. It's for this reason that special attention is usually given to the impacts of the 1918-1919 influenza pandemic (the Spanish Flu), which was ‘one of the worst pandemics in human history (Holtenius & Gillman, 2014), for understanding the potential impacts of up to date pandemics (Garrett, 2008). Although its origins were likely within the US (Barry, 2004a; Byerly, 2010), the Spanish influenza is mentioned because the Spanish Flu as Spain was the primary country during which the outbreak was widely reported because wartime restrictions on the media were still in situ in many countries. The 1918-19 pandemic infected up to 500 million people (approximately one-third of the then global population), and resulted in an estimate of between 21 to 100 million deaths (approximately 1%–5% of the world's then population) (Jeffery & David, 2006; Johnson & Mueller, 2002). The pandemic traveled round the world in three waves and could therefore be described because the first “modern” pandemic characterized by rapid movement via global transport system (shipping and railways) (Killingray, 2003; Taubenberger & Morens, 2006).

The Spanish Flu is a crucial analog for COVID-19 not only because of its similar virulence but also because many of the NPIs that were applied then are getting used to mitigate COVID-19 (e.g.

quarantine, travel restrictions) (Ferguson et al., 2006). Research suggests that the application of such measures within the case of the 1918-19 pandemic reduced death rates by approximately 50% (Hatchett et al., 2007) and, if NPI interventions were maintained then mortality was significantly reduced (Markel et al., 2006, 2007). However, as Hatchett et al. (2007) noted, interventions were rarely maintained for extended than six weeks with the virus continuing to spread once restrictions were relaxed, which then led to public questioning on the NPI's effectiveness. Given their recognized massive impacts, there's a surprisingly limited assessment of the economic effects of pandemics (Fan et al., 2018), with the bulk of studies conducted at a national level (Keogh-Brown et al., 2010a, 2010b; Prager et al., 2017). The bulk of economic studies of influenza also are generally undertaken in high-income OECD countries (Peasah et al., 2013). During a widely cited report McKibbin and Sidorenko (2006) estimated that the worldwide economic cost of a Spanish Flu type pandemic would be on the brink of 12.6% of GDP, with the best impact on non-OECD countries. During a newer assessment, Fan et al. (2018) found that at a worldwide scale, a moderately severe influenza pandemic would end in 720,000 deaths and a price of 0.6% of worldwide income (due to income loss and mortality). Table 1 compares the economic consequences of three different pandemic scenarios (Burns et al., 2006; McKibbin & Sidorenko, 2006), also as a worse-case scenario at the upper end of the severity of the Spanish Flu. A recent update by McKibbin and Fernando (2020) suggested that even a Hong Kong Flu type pandemic would scale back global GDP by around US\$2.4 trillion and a Spanish flu-type outbreak reduces global GDP by over US\$9 trillion in 2020.

Pandemic scenarios and their human and economic consequences. CSV Display Table

Nevertheless, such scenarios provide only rough estimates of the impact of the COVID-19 pandemic. Despite the considerable uncertainty of the COVID-19 pandemic, in early April 2020 the UN Department of Economic and Social Affairs (2020) estimated that a scenario that assumes wide-ranging restrictions on economic activities in many OECD countries extend until the center of the second quarter, the worldwide economy is projected to shrink by approximately 0.9% in 2020, down from the forecast of two .5% growth. They warn the pandemic is probably going to undermine efforts to realize the 2030 sustainable development goals, with highly differentiated impacts on lower-income countries.

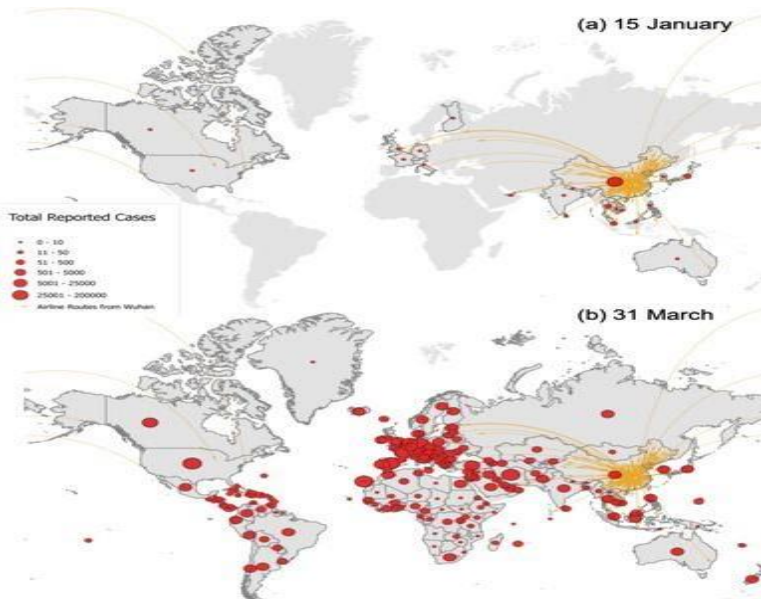
A salient question emerging from this literature is whether or not global leaders should have foreseen an epidemic like COVID-19, specifically since a range of health and economic agencies and institutions are warning of the increased risks arising from the increased likelihood of a harmful global pandemic. As an example, the World Economic Forum (WEF) engaged political, business, and other global experts/leaders in assessing key risks to the worldwide economy in its annual Global Risks Report. In 2006 when the primary Global Risk Report (WEF 2006) was conducted, an epidemic was one among four key risk scenarios. However, in the 2020 Global Risk Report, communicable disease ranked third last in likelihood (behind only weapons of mass destruction and unimaginable inflation) and tenth in potential impact. Surprisingly, it had been also regarded as one of the smallest amount inter-connected risks. Similarly, in tourism, warnings of pandemics are sounded over the years (e.g. Gössling, 2002; Hall, 2006, 2020; Page & Yeoman, 2007), cautioning about the necessity to more thoroughly examine the scenario of "[...] a persistent virulent pandemic that creates international travel a private risk and is very regulated to stop the spread of the biohazard" (Scott & Gössling, 2015: 278).

COVID-19 and tourism

The world has experienced several major epidemics/pandemics in the last 40 years, yet none had similar implications for the worldwide economy because of the COVID-19 pandemic. COVID-19 isn't as contagious as measles and not as likely to kill an infected person as Ebola, but people can start shedding the virus several days beforehand of symptoms (Bai et al., 2020; Rothe et al., 2020). As a result, asymptomatic people transmit COVID-19 before they know to self-isolate or take another measure like physical distancing publicly or wearing mouth/nose coverings to stop the spread of the virus through

speaking, coughing, or sneezing. With very limited testing in many countries, also thanks to the unavailability of tests, unknowingly asymptomatic transmission is assumed to be substantive (Li et al., 2020). Figure 2 reveals the rapid increase in and spread of confirmed COVID-19 cases from its epicenter (ECDC2020).

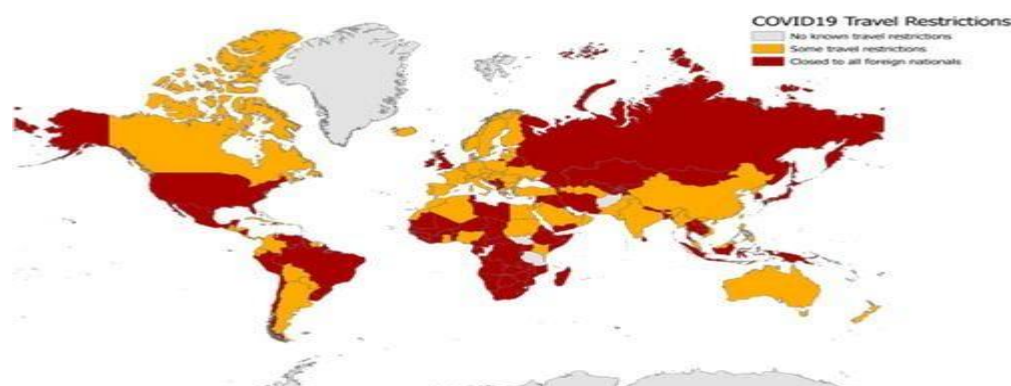
figure 2. global distribution of covid-19 cases (jan-march 2020). data source: ecdc (2020).



Observed impacts

As the number of COVID-19 cases exploded and spread globally, travel restrictions opened up from the Wuhan region epicenter (local lockdown beginning 23 January) to most countries by the top of March. Figure 3 shows countries with borders closed to movement of non-citizens and non-residents as of 31 March 2020 and partial border closures, including restrictions of individuals coming back from certain other countries or where not all types of borders are closed (air, land, sea). Using country population data, it is often estimated that over 90% of the world's population are in countries with some level of international travel restrictions and lots of these countries even have a point of restrictions on internal movement, including limited aviation and stay-at-home orders. This unprecedented response closed borders during a wide selection of industrialized countries to all or any foreign nationals, and virtually all other countries have implemented a minimum of some travel restrictions, including travel bans from selective countries, arrival quarantines, and/or health certificate requirements.

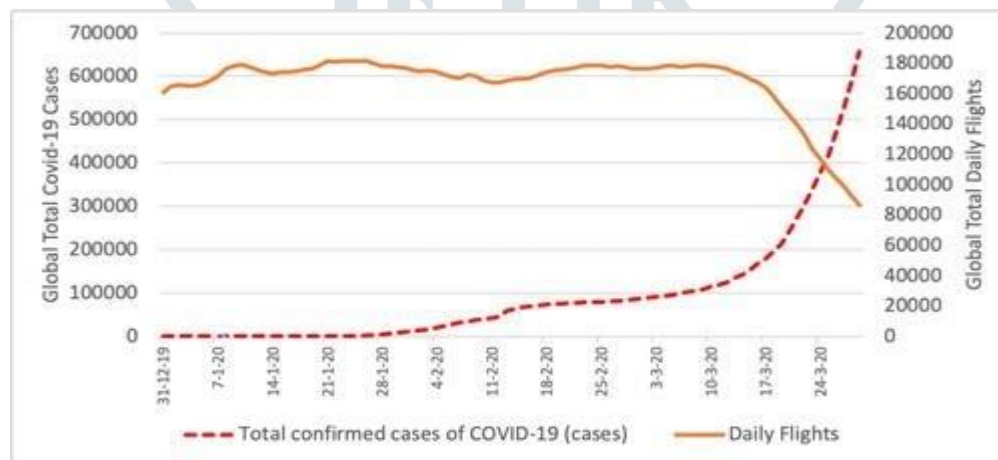
figure 3. covid-19 related global travel restrictions (as of 31 march). data sources: authors compiled from iata (2020), international security services (2020), and country travel advisory/restriction websites on 31 march.



The rapid emergence, scientific understanding, and NPI responses to COVID-19 evolved over approximately eight weeks and tourism organizations struggled to grasp the scope of what was happening: The uncertainty and dynamics of the pandemic and policy responses are exemplified in estimates of COVID-19 impacts on the sector by the United Nations World Tourism Organization (UNWTO), which were significantly revised between early and late March. A 6 March 2020 handout from UNWTO (2020a) estimated the pandemic would cause international tourist arrivals to say no 1-3% (compared to 2019) instead of the forecasted 3-4% growth. Three weeks later, on 26 March, a handout updated this assessment to a 20-30% loss in international arrivals (UNWTO 2020b). These major modifications demonstrate the problem of projections at this point, so that all estimates of eventual consequences for tourism must be interpreted with extreme caution, and are at the best indicative at the present.

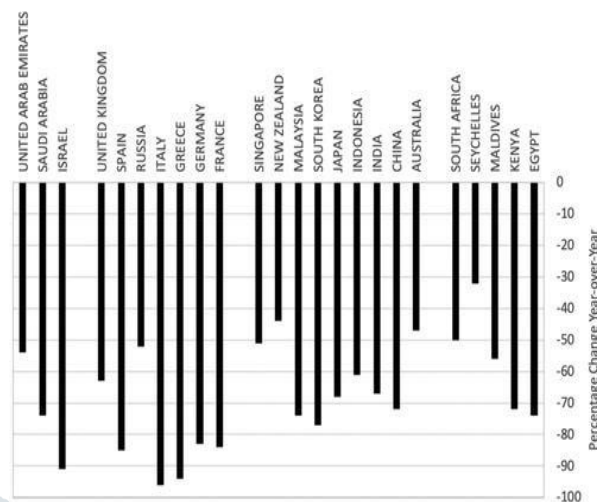
As a result of travel restrictions and lockdowns, global tourism has slowed down significantly, with the amount of worldwide flights dropping by more than half (Figure 4): as case numbers rose, travel bans grounded a growing number of carriers. Passenger numbers are likely to have declined even more steeply, as many airlines adopted specific seating policies to take care of a distance between customers. As an example, Air New Zealand's seating restrictions to satisfy government requirements of social distancing implies that the airline is flying at but 50% capacity even when "full" (Air New Zealand, 2020).

figure 4. daily global covid-19 cases and global flights. data sources: ecdc (2020), flightradar24 (2020).



The impact of the crisis on the accommodation sector is illustrated in Figure 5 for the week of 21 March, as compared to an equivalent week in 2019. Altogether countries, guest numbers have declined significantly, by 50% or more. The toughest hit were countries heavily exposed to the crisis with large case numbers causing dramatic newspaper headlines (Italy) as well as countries imposing drastic measures to limit movement in the population (Greece, Germany). Countries that appear to have fared better (Seychelles, Sweden, New Zealand) should have had large visitor numbers in March, with tourists considering to last out the crisis in countries perceived as safer. However, even in those situations, tourists are being asked by many countries to return home.

figure 5. accommodation percentage change for the week of 21 march (year over year). data source: str (2020a)



In one among the fastest reports on the impact of the COVID-19 crisis on national tourism, the Norwegian tourism organization NHO Reiseliv (2020) published longitudinal (weekly) survey data on 31 March 2020. By 5 March 2020, 41% of member businesses had registered cancellations, including hotels, campsites, gastronomy, hire car, activities, and destination marketing organizations. By 26 March 2020, 90% of member businesses had temporarily laid off staff, with 78% of businesses reducing a minimum of three-quarters of the workforce. Hotels and gastronomy, also as attractions, reported the most important decline in their staff numbers, while hire car and camping sites were less exposed. Concerning the latter, the structure of Norwegian campsites – offering more space – also because the incontrovertible fact that the season has not started yet helped to explain the comparably better situation for these subsectors.

However, on 26 March 2020, 65% of tourism businesses already reported difficulties in paying invoices. Liquidity problems were most relevant for cafés and restaurants (72%) also as hotels (63%); in comparison, DMOs reported the simplest liquidity (55% still during a position to pay). The report also shows that tourism was hit particularly hard in comparison to other economic sectors in Norway, where seafood, oil and gas, shipping, and other industries didn't report major impacts. Following tourism, services and retail reported the best pressure, temporarily shedding half their workforce. In the US, consultancies like McKinsey and Company (2020c) have reported that jobs within the accommodation and food services sector account for over 20% of all vulnerable positions, i.e. jobs that are subject to furlough, layoffs, or being unable to figure as a result of social distancing. In terms of actual numbers, this definition accounts for a lower estimate of 10.5 million sector workers and a better estimate of 12.6 million within the accommodation and food services sector (McKinsey and The company, 2020c). Among the general estimated 13.4 million jobs that McKinsey and Company (2020c) suggest might be affected within the restaurant industry, 3.6 million involve food preparation and serving (includes nutriment businesses), 2.6 million restaurant servers and 1.3 million restaurant cooks are vulnerable. While these represent an industry figures, they are doing illustrate the dire situation of the many service workers.

Significantly, workers within the accommodation and food services sector have rock bottom annual earnings and therefore the lowest levels of education of all sectors indicating how the pandemic may serve to strengthen already substantial disparities in income. Indirectly, the pandemic shines a light on welfare and job security in tourism, with differences in service employment models underlining vulnerabilities in North America in comparison to for instance Europe (Gössling et al., 2020).

Projected impacts

Various industry organizations have already published estimates of the consequences of COVID-19 for the worldwide tourism industry in 2020. As indicated, these estimates got to be treated with extensive caution, as it remains fundamentally unclear how the pandemic will develop until September, and the way travel

restrictions and large job losses will impact tourist demand during the important hemisphere summer season and beyond. While no organization features a ball, the anticipated magnitude of the impact is significant to know COVID-19 is no ordinary shock to global tourism and has no analog since the massive expansion of international tourism began within the 1950s. As highlighted, UNWTO (2020b) has projected a 20-30% decline in 2020 international arrivals that might translate into losses of tourism receipts of US\$300-450 billion. Much higher is that the estimate by WTTC (2020), anticipating a loss of up to US\$2.1 trillion in 2020. Though very significant fiscal and monetary programs have already been implemented, it's currently unclear how these will profit the tourism sector, or whether or not they will stimulate tourism demand. The subsequent sections discuss industry expectations and supply an outlook for major tourism subsectors, including aviation; accommodation; meetings, incentives, conferencing & exhibitions (MICE), and sporting events; restaurants; and cruises. For anyone employed in global tourism, the current crisis also will become a private one, as many businesses have already laid off most of their staff. A key question for all tourism subsectors is thus when travel – international also as domestic –, or when tourism and hospitality businesses like accommodation, cafés, or restaurants can reopen.

Airlines

The IATA estimate that revenue passenger kilometers (RPK) are going to be -38% lower in 2020 than in 2019, with a resulting revenue loss of US\$252 billion (IATA, 2020), which may be compared to the expectation of a net profit of US\$29 billion in 2020 (IATA, 2019). As outlined, a minimum of three airlines (Scandinavian Airlines, Singapore Airlines, Virgin) and German tour operator TUI have already received quite US\$15 billion in state aid, while US\$50 billion are awarded to US passenger airlines (Reuters, 2020). As IATA explained, most airlines have but three months of liquidity, and cannot survive an extended period of air transport restrictions (IATA, 2020). Table 2 illustrates expectations under the assumption that travel restrictions are going to be lifted by July. Airports, just like airlines, also are facing a financial crisis, with estimated losses of US\$76.6 billion in 2020 (Airports Council International, 2020). In light of the very substantial state aid contributions, and industry pressure to postpone decarbonization efforts (Carbon Brief, 2020), climate campaigners have already called on governments to bail out airlines only on conditions, including attention on workers, emission reductions, carbon pricing, or levies on frequent flying (Stay Grounded 2020).

Estimated impact of three-month lockdown on 2020 aviation capacity.

Accommodation

With most hotels being closed or experiencing vastly lower tourism numbers, 2020 industry revenue forecasts point to a big decline (e.g., US hotel revenue per available room is forecast to say no 50.6% STR, 2020b). Domestic markets are often anticipated to recover first. It is currently unclear how accommodation businesses can confirm that rooms are safe for newly arriving guests, or how individual COVID-19 cases occurring in accommodation establishments would be handled. In particular large chains also will need to reconsider their global supply chains, and therefore the dependency structures these have created.

MICE and sport events

As most countries decide to avoid a peaking in COVID-19 cases that might exceed hospital capacity, social distancing will remain a serious part of NPI strategies to limit the speed of the pandemic for several months. This will mean that each one sort of events during which larger groups of individuals meet are going to be restricted, including events as diverse as concerts, meetings, conferences, sports, or large family gatherings (e.g., weddings). Major sports leagues across Europe and North America and other countries have all ended their seasons with the opening of others including the 2020 Summer Olympic Games or the UEFA EURO 2020 postponed. The combined economic impact isn't yet known but are going to be in the many billions of dollars. This may even have repercussions for associated businesses like caterers. The MICE and sports tourism markets could thus be one among the hardest-hit tourism subsectors.

Restaurants

With restaurant closures in most countries, and an expectation that social distancing will need to remain a key strategy to manage COVID-19 in many countries for several months, it is often expected that restaurants

will face problems recovering, specifically as they typically have limited liquidity and little profit margins. Where restaurants are allowed to remain open for takeaway customers, this is often an operational alternative, also requiring fewer staff. Many smaller places, including cafés may however have decided to remain closed, as diminished customer flows don't make it possible to work at a plus. The initial easing of social distancing is probably going to advantage nutriment over fine-dining restaurants.

Cruises

No other tourism sub-sector has been within the global news as often as cruises, and it's unlikely that cruise ships can sail again before a vaccine is found or unless passengers are often tested before boarding. Rapid tests won't necessarily detect early COVID-19 infections, however. Tests are likely to also affect and potentially reinforce risk perceptions. As Moriarty et al. (2020, p. 347) affirm: "Cruise ships are often settings for outbreaks of infectious diseases due to their closed environment, contact between travelers from many countries, and crew transfers between ships". Prospective travelers are likely to remember the pictures of passengers quarantined over weeks, and ports unwilling to allow them to disembark. Discounted prices for cruise trips are likely to form this sector's economic recovery far more difficult.

A critical uncertainty associated with the severity of those impacts is when physical distancing and travel restrictions are often eased and eliminated. The American Enterprise Institute (2020) has outlined four phases of the COVID-19 response and roadmap of measurable milestones or conditions to realize to maneuver to every phase of restarting the economy. Much of the planet is currently in phase one (slow the spread). To move to phase two (initial state/country level reopening) four conditions should be achieved:

- (1) sustained reduction in new cases for a minimum of 14 days,
- (2) hospitals can treat all patients requiring hospitalization without resorting to crisis standards of care,
- (3) ready to test all people with COVID-19 symptoms, and
- (4) ready to conduct active monitoring of

confirmed cases and get in touch with tracing. In phase 2 it's suggested the majority of faculties, universities, and businesses can reopen, but that home working should continue where convenient, social gatherings should remain limited to but 50 people, and people over age 60 and with underlying health conditions should still limit contact within their community. Achieving phase two is critical to restarting the tourism economy at local, national, and maybe limited international scales (e.g. intra-European Union travel). Some countries like South Korea are arguably during this phase, except for many major domestic tourism markets, these conditions aren't anticipated to be met for 3-8 months. Once a vaccine is developed and received authorization to be used, phase three (establish immune protection and life physical distancing) physical distancing restrictions and other NPIs are often lifted. Once phase three and widespread vaccination is completed, global tourism are going to be safe to recommence. Tremendous research is being done to fast-track the development and testing of vaccines, but the estimated timeline remains 12-18 months. The ultimate phase (rebuild readiness for next pandemic) needs to invest in research and disease monitoring, health care infrastructure and workforce, and improve governance and communication structures. Tourism, especially aviation and airports, must be a part of new international monitoring and rapid response plans. This would also include a far better understanding of tourism's role in pandemics: aviation and transport more generally support the spread of pathogens, while the world also contributes to growing pressure on remaining forest ecosystems (through land-use or industrial food sourcing), i.e. developments that are seen to extend the likelihood of future pandemics.

Implications for the longer term of tourism

At the time of writing, the amount of COVID-19 infections worldwide exceeded 1.2 million and deaths has surpassed 69,000 (6 April 2020; ECDC 2020) and unemployment figures have risen steeply in many countries (e.g., US Bureau of Labor Statistics, 2020), illustrating the grave consequences the pandemic already has for economies. Given the prospect of future pandemics, there's reason to reconsider global economic value chains, and therefore the specific role of tourism as vector and the victim within the occurrence of pandemics.

As outlined earlier, tourism is about movement, and transport does act as a vector for the distribution of pathogens at regional and global scales (Gössling, 2002; Hall, 2020). However, tourism also supports pandemics indirectly. As noted above, there's much evidence that food production patterns are liable for repeated

outbreaks of the corona virus, including SARS, MERS, and COVID-19 (Pongsiriet al., 2009; Labonteet al., 2011). While these originated in Asia, the case are often made against industrialized food production more generally, which has been linked to disease outbreaks (OECD, 2012). As many tourism businesses source their food from global markets, preferably at the lowest possible cost, and as there are high volumes of garbage involved in tourism operations, the world supports industrialized food production (Hall & Gössling, 2013). Another think about virus outbreaks is humans interfering with wildlife as a result of deforestation and conversion of remaining wilderness habitat (Barlow et al., 2016; Ladeet al., 2020). Again, this is often linked to industrialized food production, for instance, to supply vegetable oil (Schouten et al., 2012). Notably, climate change also exacerbates the danger of pathogen outbreaks, because climate change will cause human migration and displacement, for example as a result of drought or flooding events (VSF, 2018). Tourism is a major source of emissions of greenhouse gases, and thus an element increasing the danger of pandemics both directly and indirectly.

The COVID-19 pandemic should cause a critical reconsideration of the global volume growth model for tourism, for interrelated reasons of risks incurred in global travel also because the sector's contribution to climate change. Tourism 'success' has been historically defined by virtually all tourism organizations - UNWTO, ICAO, CLIA, or WTTC - as growth in tourism numbers. This attitude has already been questioned within the context of the worldwide financial crisis (Hall, 2009) and because the challenges of over-tourism, global climate change, and COVID-19 pandemic further illustrate, this perspective is outdated. Albeit growth lobbyists regularly pay lip service to global climate change and therefore the SDGs, there's no evidence-based strategy for global climate change mitigation, and an overall silence regarding pandemic and other risks the worldwide tourism system imposes on itself and the global economy (Scott et al., 2019). Volume growth agendas appear to be driven by individuals and enormous businesses taking advantage of such growth models. Specifically, this includes industries represented by ICAO, CLIA, or WTTC, the platform economy (e.g. Booking and Air BnB), aircraft manufacturers like Boeing and Airbus, national DMOs, and individual large tourism corporations. The UNWTO may be a notable case of a supranational organization that's liable for advancing the SDGs in their entirety, yet in its current form represents a growth advocacy platform (Gössling et al., 2016; Hall, 2019).

The COVID-19 crisis should thus be seen as a chance to critically reconsider tourism's growth trajectory, and to question the logic of more arrivals implying greater benefits. This might begin with a review of the positive outcomes of the COVID-19 pandemic. For instance, as a result of the many decline in demand, airlines have begun to end old and inefficient aircraft (Simple Flying, 2020). Video conferences, a missed opportunity to scale back transport demand (Banister & Stead, 2004) for years, has become widely adopted by headquarters workers, including students forced into distance learning, and business travelers avoiding non-essential aviation. As affirmed by Cohen et al. (2018), many business travelers will welcome opportunities to fly less. Importantly, even high-level exchanges, like the G20 Leader's meeting on 26 March 2020, have for the primary time been organized through videoconference (European Council, 2020). After months of those new work arrangements, for a way many organizations and workers will perceive benefits of continued or partial adoption? More generally, views on mobility can also have changed in everyday contexts, as countries without full lockdown responses appear to possess seen a big rise in cycling and outdoor activities. These ongoing positive changes could also be seen as precursors for change on a broader level which will lead the worldwide tourism system reoriented towards the SDGs, instead of "growth" as an abstract notion benefitting the few (Piketty, 2015). To the present end, resilience research in tourism has highlighted the necessity to think about the zero-carbon imperative in combination with destination models seeking to scale back leakage, and to better capture and distribute tourism value (Hall, 2009; Gössling et al., 2016). There could also be an insight that tourism in its current form is not resilient, as profitability and liquidity are often marginal; a situation owed to overcapacity in air transportation and accommodation, which again can be linked to subsidies, market deregulation, and therefore the apparent disinterest of policymakers to deal with disruptive developments like the global rise of Air BnB. These general findings regarding the necessity for economic change are often contrasted with business expectations to urge "back to normal", and to possibly overcompensate for lost revenue. It also can be expected that in a situation of worldwide recession (possibly depression), austerity will prompt calls to cancel existing attempts to introduce even modest carbon pricing. Calls during this regard have already been heard from directions as diverse because the heating Policy Forum to German carmakers

(Euractiv, 2020; GWPF, 2020). Adding to the present pressure may be a historically low oil price (US\$23 at the top of March 2020);

Bloomberg, 2020), which can be exacerbated by competition in slowly recovering tourism markets, cause price-driven competition specifically in the most energy-intensive tourism subsectors, aviation and cruises. Notably, the worth of air transportation has declined by 60% over the past 20 years (IATA, 2018). Yet, if there's one message that ought to be heeded by global policymakers, it's that the pandemic is an analog to unmitigated global climate change. global climate change risks have begun to be tangible, will build up over time, and include the added risk of tipping points (Lenton et al., 2019).

Complementing these business and policy perspectives is that the question of changes in consumer behavior and travel demand. Behavior is influenced by several factors that include personal economic wellbeing and income, changes in cost, perceived health risks, and altered capacities for consumption as a result of the pandemic restrictions (Lee & Chen, 2011). As Fan et al. (2018, p.132) commented, 'Intense media coverage may lead populations to overreact to mild pandemics', affirming that behaviors are strongly influenced by the communication of data from news and social media (Kantar, 2020; Kristiansen et al., 2007). After conducting consumer sentiment surveys across China, Italy, Spain, The UK and therefore the US McKinsey and Company (2020a) suggest that consumer optimism are going to be higher at the start/end of the pandemic and vary between countries. within the case of China, the primary country to travel through the various stages of the COVID-19 pandemic, McKinsey and Company (2020b) found consumers were regaining confidence, and interestingly, a greater interest in environmentally friendly products. The pattern identified in consumer surveys is to be expected because it closely follows the notion of a problem -attention cycle across the various stages of an issue, problem, or perception of risk (see Figure 6; Hall, 2002). consistent with Downs (1972), modern publics cyclically attend to several issues. a drag "leaps into prominence, remains there for a brief time, and then, though still largely unresolved, gradually fades from the center of public attention" (1972, p.38). The 2003 SARS outbreak illustrates this well, as tourism growth to Asia picked up very quickly once the perceived threat diminished (McKercher & Chon, 2004).

figure 6. changes in consumer sentiment over the stages of a pandemic. source: authors.



Conclusions

This rapid assessment has provided a summary of the continued crises up to the top of March 2020, and discussed how it compares to earlier crises. With the magnitude of the COVID-19 pandemic, there's an urgent needn't to return to business-as-usual when the crisis over, rather than a chance to reconsider a change of the worldwide tourism system more aligned to the SDGs. This raises a substantial number of related questions and research needs, i.e. whether the pandemic will support nationalism and tighter borders even within the longer-term; the role of domestic tourism within the recovery and therefore the longer-term transformation to more resilient destinations; the behavioral demand responses of tourists within the short- and longer-term, including business travel and widespread adoption of videoconferencing; the financial stimulus and its consequences for austerity and global climate change mitigation; also because the world's perspectives on the SDGs. Specifically, concerning the latter, the pandemic raises questions of vulnerability, as low-paid jobs in tourism are

disproportionately suffering from the crisis and early indications are the tourism impacts in lower-income countries are going to be disproportionately considerably greater. COVID-19 provides striking lessons to the tourism industry, policymakers and tourism researchers about the consequences of worldwide change. The challenge is now to collectively learn from this global tragedy to accelerate the transformation of sustainable tourism.

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