

Impact of the COVID-19 crisis on European tourism

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Abstract

The COVID-19 pandemic and the containment measures imposed damaged the world economy severely. As a consequence of the stringent restrictions on business and social life, as well as the consequent economic downturn, tourism demand has seen a unique dramatic slump in the year 2020. This study concentrates on analysing and forecasting demand for international travel of the euro area in terms of tourism imports. Starting out from a description of the key macroeconomic factors, it then analyses their effects on tourism demand and develops a forecast model using contemporary approaches considering asymmetric income elasticities of tourism demand. Scenarios are elaborated to project demand for foreign travel of the euro area until 2022.

Keywords

asymmetric income elasticities, COVID-19 crisis, decline in tourism demand, international tourism, scenarios and forecasts for 2021 and 2022

Introduction

The rapid global spread of the coronavirus started in China by the end of 2019 and quickly showed strong impacts in other Asian countries, Australia, the Middle East, Europe, North and South America as well as Africa. The progressive waves of COVID-19 infection led to an economic shutdown and a marked decline in both output and demand in most of the major tourism source markets, making a significant negative impact on the tourism industry all but inevitable.

The global economy entered a severe recession in spring 2020 as a result of the free fall of demand and output. A comparison between the global financial crisis (GFC) of 2008/09 and the COVID-19 crisis is not valid as the former resulted primarily from a demand shock, whereas the

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present crisis is more or less a combination of both supply and demand shocks. Delivery chains have been interrupted and millions of people have lost their jobs, at least temporarily, as government measures forced most businesses to close in order to reduce infection risks. Despite these measures, many people have become infected, a considerable number have required treatment in hospitals, many more have been required to isolate in quarantine and some countries have also suffered high death rates. Particularly countries with less resilient health systems have been placed under enormous pressure in attempting to deal with the high numbers of infected people.

The economic downturn, the high unemployment, the severe income losses, burning liquidity problems as well as the enacted closing of hotels and restaurants and the cessation of air or bus transportation have led to a free fall in tourism demand. The crisis has had a global and all-encompassing impact on social and economic life as well as raised uncertainties about the pending public and personal health risks and the economic future. During the lockdown in the first half of 2020, we were forced to change our lifestyles by often stopping paid work, seeing our friends and relatives, and travelling. Businesses, factories, schools and universities were closed; streets were emptied and public transportation had very low frequencies or stopped altogether. Especially to reduce further infections, travelling was stopped, to avoid that social costs were borne by residents of tourist destinations (Farzanegan et al., 2020; Qiu et al., 2020).

Once new infection rates had slowed, the restrictions on social and business life were gradually lifted, and the economy recovered to some degree in the summer of 2020. However, this increased mobility saw the virus again spreading strongly in European countries as fall started, and the crisis deepened. Because of alarming increases in infection rates, the governments in many European countries enacted further regional and national lockdowns, again restricting business and social life (mask wearing, 'social distancing' and dusk-to-dawn curfews). Just as in the spring lockdown, tourism was hit hard by the closing of restaurants, bars and hotels, as well as restrictions or bans on cross-border travelling and even limitations on regional and local travelling in some countries. As a consequence of the new containment measures, expectations have turned around significantly since last spring: instead of the hoped recovery in fall 2020, a new recession eventuated in the end of 2020, lasting until 2021.

Studies about the consequences of pandemics such as COVID-19 for the world economy and the global tourism and leisure industries are rare. Therefore, we try to shed more light on the potential impact on tourism by forecasting the demand for the whole euro area¹ in terms of the total expenditure of outbound travel in all destinations (tourism imports). We approach the problem with three scenarios in form modest optimistic, optimistic and pessimistic variants.

Besides general uncertainties and the difficulties associated with producing highly accurate forecasts, it needs to be taken into account that forecasting with conventional models could deliver biased parameter estimates for capturing negative and positive demand responses resulting from economic fluctuations resulting from shut down measures and the following recovery. Considering these exceptional circumstances, we avoid the use of standard tourism demand models which are based on econometric techniques assuming that the effects of income and price on the demand for tourism remain stable across the business cycle (Li et al., 2005; Smeral, 2009; Smeral, 2010; Song and Witt, 2000; Song et al., 2009; Stabler et al., 2010).

In contrast to these approaches assuming constant elasticities across the business cycles, we employ recent research results and related models (Croes et al., 2018; Bronner and Hoog, 2014, 2016, 2017; Peng et al., 2015; Smeral, 2017, 2018; Smeral and Song, 2015): these studies showed that asymmetric tourism behaviour across the business cycles in terms of varying tourism demand elasticities is possible, and to be expected, and is not to be excluded automatically from the research approach. Taking into account that tourism demand elasticities could have different extents depending on scenarios about the state of the economy is important when analysing tourism demand in

the course of the business cycle and improving forecasting accuracy, and therefore represents important information for defining business strategies.

Smeral and Song (2015) demonstrated for several source markets that income elasticities are indeed asymmetric across the business cycles and showed that the modified growth rate model had, in the great recession 2009 and in the recovery period 2010, a by far better forecasting accuracy in terms of tourism import demand as the time-varying parameter model. Furthermore, Peng et al. (2015) as well as Smeral (2017 and 2018) pointed out that in cases of business cycle fluctuations with changing expectations on the part of individuals, the assumption of constant income elasticities is likely to lead to greater forecasting errors than the application of approaches to forecast tourism import demand with fluctuating elasticities. Further, Smeral (2019) showed that there is revealed compelling evidence that the majority of models allowing to measure asymmetric income effects yield superior forecasting performance for tourism import demand in comparison to models considering only the possibility of symmetric income effects across the business cycles. The asymmetric demand reactions in different stages of the business cycle were confirmed by Bronner and Hoog (2014, 2016 and 2017) when analysing Dutch travel behaviour for the main summer holiday.

The results of tourism research into varying elasticities across the business cycles are also in line with the outcomes of macroeconomic studies. Several studies about business cycles have shown that the demand reaction can be asymmetric as one phase of the cycle is not the mirror image of its opposite phase (Bjellerup and Holgerson 2009; Cook 2000; Holly and Stannett 1995; Kähler and Marnet 1992; Sichel 1993).

Taking into account that tourism demand elasticities could take different values depending on the state of the economy, we expect that income elasticities in case of a strong and severe economic downturn resulting from the COVID-19 pandemic would be significantly larger than in a growth scenario and that the downwardly directed adjustments will be stronger than the upwardly directed adjustments (Croes and Ridderstaat 2017; Croes et al., 2018). In line with the latter, in projecting the post-crisis development of the tourism industry, we need to consider that the recovery could be very sluggish as the learning that savings are useful for precautionary reasons in times of emergencies will lead to a higher saving propensity to replace savings used during the crisis, which will weaken development of the consumption budget and of tourism demand.

The use of models allowing asymmetric income elasticities of tourism demand is also a theoretical base to show that according to the lower income elasticity in the recovery/catch up period it takes time to reach the former demand level of 2019.

This article concentrates on analysing and forecasting demand for international travel of the euro area in terms of tourism imports. After the literature review, we describe the recent macroeconomic and tourism development trends and analyse the effects of the key macroeconomic factors on tourism demand. In the next step, we develop a forecast model to project demand for total foreign travel from the euro area until 2022. Beside a modest optimistic scenario, a pessimistic and optimistic scenario featuring different development paths of the COVID-19 crisis are drafted, and their outcomes are discussed.

Literature review

Even though economists have made considerable efforts to develop models which estimate the effects of specific events (impact analysis) such as 9/11, SARS, mega-events, wars, terrorist attacks or financial and economic crises; to the best of our knowledge, studies about the consequences of a

pandemic such as COVID-19 for the world economy and the global tourism and leisure industries in particular are rare.

In a recent study, [Gössling et al. \(2020\)](#) analyse the effects of prior pandemics and the COVID-19 crisis on the global tourism industry. [Gössling et al. \(2020\)](#) pointed out that the negative impact of epidemic/pandemic outbreaks will be greater on the tourism industry and supporting sectors in the world's poorest economies. In another study, [Welfens \(2020\)](#) analysed the macroeconomic and healthcare aspects of the COVID-19 crisis and showed that countries with high tourism shares in the GDP have to expect higher growth inhibiting effects than other countries. [Fodiat et al. \(2021\)](#) produced different scenarios in forecasts for international tourism demand as a consequence of the COVID-19 crisis. Their results indicate that the drop in tourist arrivals can range in the period June 2020 until June 2021 between 30.8% and 76.3%.

Many studies which do exist tend to deal only with specific aspects and not with the all-encompassing effects of a seemingly bottomless fall, as has been experienced in international tourism. The same is true for analyses of the possible ways to return to 'normality' after such a crisis.

In some way, comparable research projects to the COVID-19 crisis have concentrated only on regional impacts with far lesser negative effects on the economy and tourism demand ([Fong et al., 2020](#); [Rossello et al., 2020](#); [Yang et al., 2020](#)). [Dolnicar and Zare \(2020\)](#) pointed out the uniqueness of this pandemic in highlighting that the present crisis is more or less a combination of demand and supply shocks. In considering the magnitude of the supply shock, one must take into account the fact that strongly affected countries such as the USA, China, Japan, Germany, UK, France and Italy produce approximately 60% of the global world goods supply, almost 50% of manufactured production and 40% of the merchandise exports ([Baldwin and Weder di Mauro, 2020](#)), which demonstrates the global impact of the supply bottle neck.

[Farzanegan et al. \(2020\)](#) examined the relationship between international tourism and COVID-19 cases and associated deaths in more than 90 nations. Their analyses showed that countries with a high international tourism intensity are more exposed, caused by the COVID-19 outbreak as 1% higher level of inbound and outbound tourism is associated with a 1.2% higher level of confirmed COVID-19 cases ([Farzanegan et al., 2020](#)). [Karabulut et al. \(2020\)](#) measure by a newly developed index on how pandemics affect tourist arrivals. They used a new version of the World Economic Uncertainty Index modified to calculate the percent of the words related to pandemic effects in the Economist Intelligent Unit country reports and found out that in low income countries, a 10% increase of the index led to a 2% decrease in tourist arrivals ([Karabulut et al., 2020](#)).

A study about Greece demonstrated severe tourism-related effects of the COVID-19 crisis on the economy ([Mariolis et al., 2020](#)): the authors estimated that an unexpected decrease of the international travel receipts in the range of 3.5–10.5 billion euros would lead to a decrease in GDP of about 2% to 6%. Another article deals with the social costs of tourism during the COVID-19 pandemic. [Qui et al. \(2020\)](#) estimated the willingness to pay of residents to lower public health risks in their destination based on hypothetical scenarios, using the triple-bounded dichotomous choice contingent valuation method.

The COVID-19 crisis also has an impact on the accommodation supply structure. [Dolnicar and Zare \(2020\)](#) differentiate between three Airbnb host types and assume that COVID-19-related shocks affect different types of hosts differently. According to their forecast, the proportion of the profit-oriented capitalist hosts will decline, and the proportion of befrienders and ethicists hosts – enjoying the social aspect of hosting and believing in the principle of sharing – will increase ([Dolnicar and Zare, 2020](#)). Another study showed that the pandemic affected the communication behaviour of hotels, which developed strategies to reduce the fears of health risks: [Hang et al. \(2020\)](#) state in this study that during the COVID-19 crisis, both tourists and the hotel sector have common

feelings of fear and anxiety. The authors argued that crisis communication focusing on shared emotions during the pandemic is very important, as it can be crucial for tourism recovery (Hang et al., 2020).

Another consequence of the COVID-19 pandemic is also that tourism core industries such as hotels, airlines, cruise lines and car rentals have experienced a substantial fall in market valuation (Sharma and Nicolau, 2020). The drop in market value of these industries is very strong to raise serious concerns about their long term performances (Sharma and Nicolau, 2020).

The macroeconomic setting and tourism development

After 7 years of growth at an annual rate of 3¼% in real terms, the world economy ran into trouble in early 2020 as the fast spreading of the coronavirus led to a lockdown in all of the largest economies on the globe. Economic reports by national and international bodies agree that the global economy has taken a serious downturn in 2020 with a low point in the second quarter as a result of the measures implemented to combat the spread of COVID-19.

This dramatic situation in spring 2020 has led to shrinking private consumption and, because of the growing uncertainties, many enterprises have had to postpone their investments and revise their investment plans. The declining expenditure of households and enterprises at a global scale has also seen industries delivering intermediate inputs suffering precipitous revenue losses.

To mitigate the dramatic economic damage of the COVID-19 crisis and the deteriorating macroeconomic outlook in early spring 2020, the major goal of economic policy was to support rapid economic recovery to give the recessionary dip a V-shape. Many governments have taken various measures encompassing, as far as possible, all sectors of the economy to at least partially mitigate the effects of this standstill. The objective of the public policies was to keep people in jobs by facilitating short time work arrangements (wage compensation and/or wage subsidies), secure short term liquidity (= ability to pay off its current liabilities with its current assets) and stabilize long term solvency (= ability to pay for long-term debt in the long run) and thereby prevent personal as well as company bankruptcies.

The global economic picture in spring 2020 looked unfavourable, with recession taking hold in many economies across the world (EIU – Economist Intelligence Unit, 2020). Added to this economic downturn are the explosively growing threats of unemployment, losses of income, uncertainties in assessing the present and future value of assets, and the safety of savings. All these factors will put a long-term damper on consumption and, consequently, on investment. Consumer cutbacks will disproportionately affect luxury goods in general as well as tourism services as ‘non-necessary consumer goods’ in order to provide for ‘necessary’ consumer goods such as food, heating, electricity, housing or transport.

After reaching an economic low point in the second quarter of 2020 as a result of the measures implemented to combat the spread of COVID-19, infection rates slowed and restrictions on social and business life were gradually lifted, allowing the world and the European economy to recover in summer 2020. However, in the beginning of fall 2020, we faced a second wave of infection and instead of a sustainable economic recovery, the dynamic speed was lost and showed signs of slowing down. Because of alarming increases in the infection rates and impending shortages of hospital beds, the responsible institutions of many European countries enacted national or at least partial lockdowns by region, business and activity in effect at least until the spring of 2021. Business, and social life (curfews, mask wearing and ‘social distancing’) and travelling became restricted again.

The magnitude of the worldwide economic downturn was very strong with a decrease in world GDP of 3½% in 2020. In 2021, a recovery of around 5½% is forecasted, assuming that in the course of 2021 the pandemic fades out – also supported by the gradual effects of vaccinations (EC, 2020b; EC, 2021a; IMF, 2021; OECD, 2020b). For 2022, a growth rate of 4¼% is expected (IMF, 2020c; OECD, 2020b). This economic slump in 2020 as a result of two infection waves with only one quarter between them is dramatically more severe than that of the global finance crisis GFC) 2008–09, when real world GDP ‘only’ stagnated rather than falling.

According to estimates based on preliminary data, the 2020 economic drop in the eurozone of 6¾% will be more severe than that of the world economy as a whole; for 2021 and 2022, a GDP growth of 3¾% is expected. (EC, 2020a; OECD, 2020b; IMF, 2020c).

Tourism demand was already showing dramatic effects in early spring 2020. According to UNWTO, international tourist arrivals (overnight visitors) decreased 2020 by 74%, in Europe international arrivals declined by 70% (UNWTO, 2021). In the EU as a whole, night spending by domestic residents declined 2020 by almost 30%, those by non-resident tourists declined similar than the arrivals by about 70% (EC, 2021a).

As a result of the economic downturn and closed tourism businesses, industry expectations of the demand slump were already more pessimistic at the beginning of the crisis than the fall during the GFC 2008–2009. Figures 1–3 show, based on seasonally adjusted monthly balances of positive and negative responses to the EU business survey for accommodations, restaurants, travel agencies and tour operators in percentage of the businesses polled, the expected turnover development for the next 3 months until May 2021 (EC, 2021b). After the dramatic slump in the first half of 2020, expectations improved during the summer before worsening again in the fall with the beginning of the second wave and the new containment measures. At the beginning of 2021, there are slight signs of improvement – probably due to the start of vaccinations and hopes of an economic upswing in the near future – but these are less distinct in the accommodation sector than in the other sectors covered.

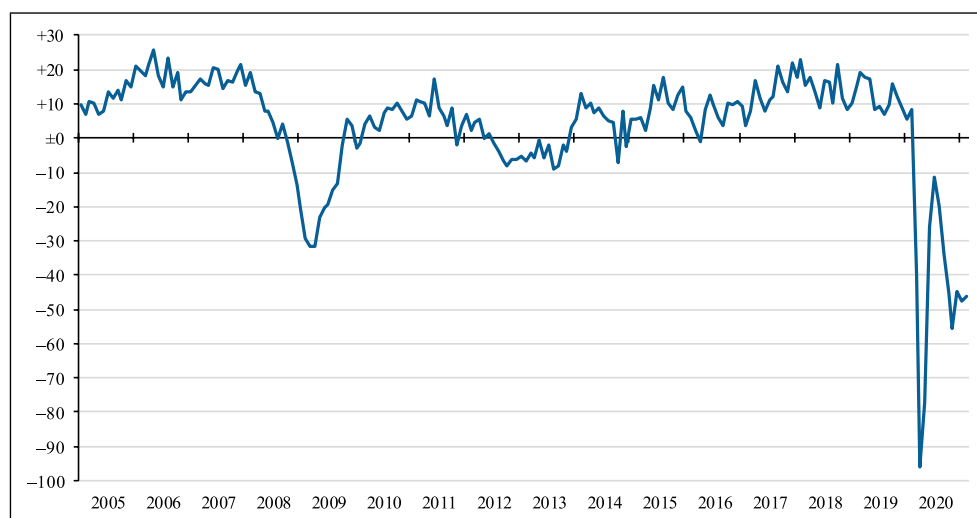


Figure 1. EU accommodation businesses: expected turnover development until May 2021 by February 2021. Source: Business and Consumer Survey, (European Commission, 2021b).

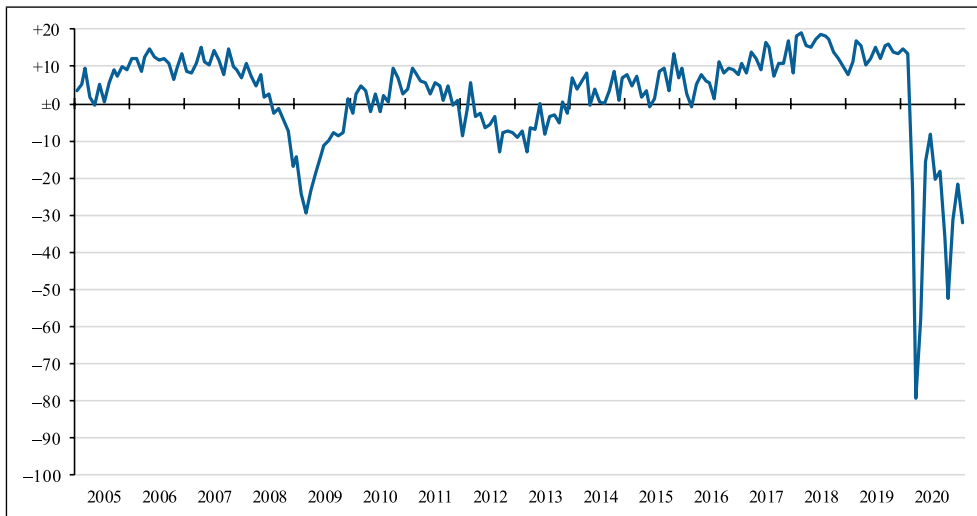


Figure 2. EU restaurant and food services: expected turnover development until May 2021 by February 2021. Source: Business and Consumer Survey, (European Commission, 2021b).

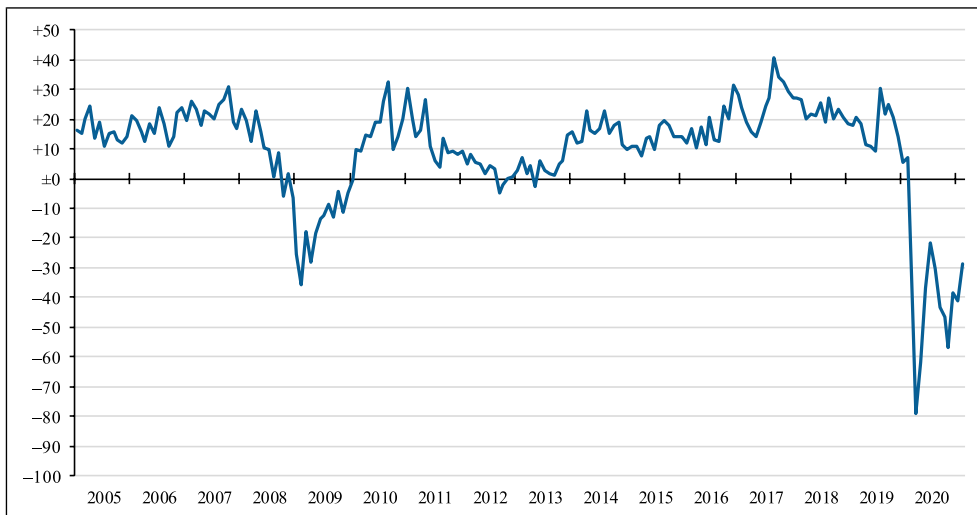


Figure 3. EU travel agencies and tour operators: expected turnover development until May 2021 by February 2021. Source: Business and Consumer Survey, (European Commission, 2021b).

Methodology

The approach chosen is a variation of the tourism standard model, which is modified to capture asymmetric tourism demand behaviour across the business cycle with respect to income elasticities (Smeral and Song, 2015). While mainstream tourism research explaining tourism demand trends assume constant elasticities (Li et al., 2005; Song and Witt, 2000; Song et al., 2009; Stabler et al., 2010),

a number of publications in recent years have discussed this assumption very critically and pointed out that the research approach also has to take into account the possibility of fluctuating demand elasticities across business cycles (Bronner and Hoog, 2017; Peng et al., 2015; Smeral, 2018). These considerations are of particular importance in turbulent times when the economy, and as a consequence, also tourism, suffers dramatically, such as under the effects of the COVID-19 crisis.

In situations where businesses cannot operate, people have no work, and all face a drastically restricted mobility and limited social contact, consumers and investors will behave differently than in 'normal' recessions or slow growth periods: particularly by reducing their non-necessary expenditures as much as possible to mitigate liquidity problems. Also, in the following period of normalization or recovery, it must be taken into account that precautionary saving to replenish financial reserves, higher taxes, and lower public expenditures will limit tourism demand development because of the weak growth of disposable income. In other words, tourism behaviour will not be 'normal' in the coming years and rather, in an 'after crisis' mode, while other reasons for asymmetric behaviour in tourism demand identified in previous studies analysing 'normal' slow growth and fast growth periods, such as loss aversion and other quality-of-life aspects, will play only a minor role (Bronner and Hoog, 2016, 2017; Dolnicar et al., 2012; Kahneman and Tversky, 1979; Nicolau, 2008, 2011; Smeral, 2018; Treeck, 2008, 2010).

The use of non-linear models allowing to capture asymmetric tourism demand behaviour delivers the theoretical base to demonstrate that according to the lower elasticities in the recovery (catch up) period, it takes longer to adapt to former levels than the downwardly directed adjustments in case of a crisis or recession (Croes and Ridderstaat 2017; Croes et al., 2018).

The model employed is a modified growth rate model (MGR) based on an international demand approach (Song and Witt, 2000; Smeral and Song, 2015). We analyse aggregated outbound expenditures (tourism imports) for the euro area as this approach allows varying elasticities across business cycles to be clearly demonstrated and minimizes potential biases which could be introduced when including domestic tourism demand into the analysis because of the substitutional relationship between the two demand categories (Song and Witt, 2000; Smeral and Song, 2015).

In equation (1) below

$$\Delta \ln MR_t = \alpha_1 + \alpha_2 \Delta \ln GDP_t \times DUMPLUS_t + \alpha_3 \Delta \ln GDP_t \times \Delta DUMMINUS_t + \alpha_4 \Delta \ln MP_t + \epsilon_t \quad (1)$$

The demand for tourism of the euro area is expressed in terms of tourist expenditures for outbound travel at constant prices and exchange rates (real tourism imports).

The real spending on the total outbound travel of the euro area (MR_t) is influenced by the real income of tourists, as indicated by the country-specific gross domestic product (GDP) at constant prices and exchange rates (real GDP and GDP_t) and the average prices of real tourism imports (MP_t). The prices for the tourism imports are captured by the consumer price indices of the specific destination countries. In terms of the price elasticities, we assume symmetric consumer behaviour as previous studies supported our assumptions (Smeral and Song, 2015). On the other hand, it should be also considered that the asymmetric price effects might be hidden by the fact that we used *ex post* data because *ex ante* data were not available.

All the variables used are USD values. ϵ_t is the error term, and $\alpha_1 \dots \alpha_4$ are the parameters to be estimated; all variables are expressed in log differences.

Many variables should be considered with modelling tourism demand, with the most important being transportation costs, marketing expenditures, perceived attraction of the market and consumer tastes (Gunter and Smeral, 2016; Lim, 1997). According to Lim (1997), for modelling tourism

demand in an optimal manner, one needs long and consistent time series. Data about all these variables are very difficult to obtain, associated with considerable work and, in many cases, also considerable costs. For these reasons, most tourism demand studies take into account only the major explanatory variables, such as indicators for income variables and prices (Song and Li, 2008). However, we tried in a test version to consider oil prices as an indicator for transportation costs, but the relevant coefficient was statistically not significant. Further, one also has to take into account that the used price indices reflect to a certain degree also transportation costs, and a correlation between the oil prices and consumer prices is to be expected. Another reason might be that oil prices as an indicator of energy costs are partly reflected in real income effects, and therefore a negative correlation between oil prices and real income/GDP exists.

The *Hodrick–Prescott (HP) filter* method is used to estimate a flexible trend for national GDP and to indicate the state of the respective economy based on growth rate differences between actual GDP and its related flexible trend (Hodrick and Prescott, 1997; Smeral and Song, 2015). The DUMPLUS and DUMMINUS variables indicate whether economic growth is faster or slower than the flexible trend (Smeral and Song, 2015; Smeral, 2017).

DUMPLUS has a value of one in these periods when the growth rate of the GDP is greater than the trend and a value of zero in all other growth episodes. In contrast, the DUMMINUS variable has a value of one in these years with a GDP growth rate lower than the trend and a value of zero in all other years. Measuring the elasticity of tourism demand in fast growth periods (FGPs: this period combines the business cycle stages above the flexible trend such as the expansion, peak and slow down periods) and in slow growth periods (SGPs: this period combines the business cycle stages below the flexible trend such as the recession, trough and recovery periods) allows to estimate different elasticities according to the state of the economy.

Data and estimation results

In order to estimate asymmetric income elasticities across the business cycle, we used the model defined by equation (1) to estimate the tourism imports of the euro area. The structure of the yearly data allows us to use standard ordinary least squares (OLS).

The estimation period for the model extends from 1995 to 2020. The annual data until 2019 were obtained from the balance of payment statistics developed by the International Monetary Fund (IMF, 2020a), the national accounts of the Organization for Economic Co-operation and Development (OECD, 2020a), and the tourism statistics of the World Tourism Organization (UNWTO, 2021). The base year of 2010 was chosen for the expression of the variables at constant prices and exchange rates (real GDPs and real imports) as well as the price indices used.

To also capture the recent strong fluctuations due to the COVID-19 crisis in the parameter estimation, we also considered the preliminary data estimates for 2020 and therefore assumed a GDP decrease of 6¼% for the eurozone in 2020 (EC, 2021a; OECD, 2020b). In the case of real tourism imports of the euro area, we followed the country-specific trends in expenditures and prices as well as the development of the €/£ exchange rate according to the UNWTO data and estimated for the year 2020 a decrease of –60% (IMF, 2020a, 2020b and 2020c; UNWTO, 2021).

Although not directly comparable, a drop of 60% of the real expenditures for outbound travel clearly demonstrates the uniqueness of the present crisis as, in contrast, the GFC 2008–2009 resulted only in a 3.8% fall in international tourist arrivals, while the 09/11 attack and the SARS outbreak of 2002–03 led to declines of only 0.7% and 1.8%, respectively.

The econometric estimation of the tourism import demand functions provided significant results with asymmetric income effects. The estimated differences in income elasticities were also

Table 1. Econometric estimation of the euro area real tourism imports, 1995–2020.

equation (1): $\Delta \ln MR_t =$
 $-0.46 + 1.60 \times \Delta \ln GDP_t \times DUMPLUS_t + 6.79 \times \Delta \ln GDP_t \times \Delta DUMMINUS_t +$
 $(-1.52)(2.27) \quad (11.15)$
 $-11.03 \times DUMMY1996 + 25.57 \times DUMMY2014$
 $(-4.20) \quad (5.25)$
 $R^2 \text{ adj.} = 0.91 \text{ D.W.} = 2.15$

Sources: International Monetary fund (IMF, 2020a), Organization for Economic Co-operation and Development (OECD, 2020a), EC (2021a), United Nations World Tourism Organization (UNWTO, 2021), own calculations by Views 11. Values in parentheses are t-statistics. The DUMMY variables are set for data irregularities.

supported by the Wald test. When the actual growth rate of the economy is greater than the flexible trend (i.e. when DUMPLUS equals one), we estimated an income elasticity value of 1.60 for the euro area. However, in periods of slower than average growth or even crisis (i.e. when DUMMINUS equals one), the elasticity value climbed to 6.79 (see equation (1) in Table 1). In other words, the negative demand reactions to an income decrease are much stronger than the positive demand effects relating to an income recovery exceeding the flexible trend. The estimation results also show how long it could take to return to pre-crisis outbound levels after the strong declines in international demand in 2020, and the levels of economic growth that would be necessary.

However, it should be noted that for the estimation, 2020 data were used, which are affected by the COVID-19 crisis. As a result, the 2020 data reflect the negative import demand effects triggered by the containment measures (business closures, travel restrictions, social distancing, curfews, etc.) and the subsequent massive economic downturn. Therefore, we have to take into account that the negative demand response of 2020 is a mixture of interacting, non-separable influencing variables and the associated effect cannot be interpreted as a ‘pure’ income elasticity.

The estimated price elasticity of around -0.1 was relatively small and statistically not significant, so we did the estimation without the price variable. To explain the failing of capturing the price effects, one has to consider that country-specific price effects will partly balance each other out in the aggregate, and also that the price fluctuations in the European destinations have been relatively minimal since the introduction of the euro.

Scenarios

The prevailing situation related to the COVID-19 effects departs from previous downturns; however, governments have declared a state of emergency in many cases and used emergency decrees to control the pandemic through more or less rigorous restrictions on business and leisure activities, cultural and entertainment events, mobility, and reduced social interactions. In contrast to usual downturns, even people who have discretionary money available do not spend it completely as the given restrictions cut off or reduce the possibilities and/or have negative effects on the consumers’ climate. The consequence of these factors has been a precipitous drop in market demand.

The COVID-19 pandemic caused a severe unique economic and health crisis. After the downturn in the first half of 2020 and eased containment measures across Europe, a quick economic recovery was following. However, after the summer at the beginning of the fall, alarming increases in the infection rates as well as virus mutations forced governments in many European countries to re-introduce containment measures. However, strategies differ from country to country. All these factors raise business costs and contribute in general to an erosion of productivity.

Table 2. GDP development in the euro area in percent.

	2020	2021	2022
Modest optimistic scenario	−6.8	3.8	3.8
Pessimistic scenario	−6.8	2.2	3.8
Optimistic scenario	−6.8	5.2	4.0

Source: (EC, 2021a; IMF, 2021; OECD, 2020b); own calculations and modifications.

Table 3. Effects of the GDP development on real tourism imports changes in the euro area in percent.

	2020	2021	2022
Modest optimistic scenario	−60.0	5.6	5.6
Pessimistic scenario	−60.0	3.6	5.6
Optimistic scenario	−60.0	7.9	6.0

Source: (IMF 2020a, 2020b, 2020c and 2021); (UNWTO, 2021); own calculations by EViews 11.

The prospects for further economic development depend on many factors such as how strong the new virus outbreaks in fall 2020 (including the later adding virus mutations) will be and how long they will take, as well as the degree to which current containment measures are partly lifted maintained or reinforced. Further roles are played by the time required to make an adequate quantity of vaccines available – effective also for the virus mutations – to cover a broad swathe of the population and the extent and duration of fiscal and monetary measures intended to support demand.

To shed some light on different development paths we elaborated three scenarios such as modest optimistic, pessimistic and optimistic scenarios:

Tables 2 and 3 give an overview of the different GDP developments for each scenario and their impacts on the real expenditures for outbound travel employing the estimated equation (1) (see Table 1).

The GDP developments in the three scenarios are partly based on EC, IMF and OECD sources, as well as own modifications which made adjustments for the varying assumptions underlying each scenario (EC, 2021a; IMF, 2021; OECD, 2020b). All these scenarios consist of seven steps:

1. Governments should follow rigorous strategies to vaccinate a broad swathe of the population in a short time period,
2. Uninterrupted step-by-step fading out of the infection (including the side effects of the virus mutations),
3. Lifting and/or at least mitigating of the containment measures influencing consumption and tourism negatively,
4. Improvements of the consumer and travel confidence,
5. Recovery of consumer and tourism demand,
6. Improvements in the investment climate and
7. Economic recovery.

The basic differences between these scenarios is practically the speed to get from step one to step seven, which is reflected in the different GDP growth rates. We adjusted the scenarios in such a way that we moved the beginning of the recoveries in the different scenarios of the international

organizations in the average for two to 3 months into the future because their assumptions were too optimistic for our view. Taking into account the present development trends supports our decision.

In the *modest optimistic scenario*, we expect that the containment measures will, at least in the short run, have negative effects on consumption and investment, but to a lesser extent than in the spring 2020. Moreover, combination of lower fiscal revenues and higher public spending has already pushed many countries to the brink of a debt crisis and another total lockdown could trigger sovereign defaults.

As a consequence of the re-introduction of containment measures, economic growth in the euro area will stop in the fourth quarter of 2020: a decrease in GDP of $-3\frac{1}{4}\%$ against the previous quarter is expected (EC, 2021a). In the average of the year 2020, the GDP of the eurozone decreased by $6\frac{3}{4}\%$ (EC 2021a; OECD, 2020b).

In the modest optimistic scenario, we assume a vaccine will be available. However, as it takes time to produce vaccines in sufficient amounts and to vaccinate on a broad scale, as well as to convince anti-vaxxers about the advantages of vaccination, the virus containment measures are assumed to be effective throughout the forecast horizon, with their stringency gradually easing in 2021 and disappearing during 2022.

Under these assumptions, we expect that in the modest optimistic scenario, the economy in the eurozone will start to recover slowly during the second quarter of 2021 after a further decrease in the first quarter 2021 against the previous quarter by -1% . Although economic activities will get stronger in the second half of 2021, the recovery will remain constrained by high levels of precautionary saving and unemployment as well as by sluggish investment behaviour – particularly from firms with high debts – and the only gradual lifting of containment measures.

In the modest optimistic scenario, we assume that GDP growth rates of $3\frac{3}{4}\%$ in 2021 and 2022 are reliable (EC, 2021a; OECD, 2020b). This growth path implies that GDP in 2022 will be approximately at the level of 2019.

The recovery in 2021 depends critically on a rigorous strategy to vaccinate a broad swathe of the population in a short time period to wipe out the pandemic as fast as possible. Failing that, consumer and investor confidence will not be restored as containment measures get fortified and will impede the recovery of the business and consumption climate. Moreover, the effects of the health crisis on economic activity and financial markets could turn out be stronger and longer lasting than anticipated, testing the resilience of financial systems.

Tourism demand has seen a dramatic slump in 2020 as a result of the economic crisis induced by the implementation of containment measures: closed hotels and restaurants, travel agencies without business, cancelled air transportation, as well as mobility and contact restrictions have hit the industry very hard as all key markets disappeared practically overnight. According to the available preliminary data related to the country-specific trends and our estimations, the real expenditures for outbound travel (tourism imports) decreased in 2020 by around 60% (UNWTO, 2021). Employing equation (1) predicts that tourism imports of the eurozone will increase in the FGP by $5\frac{1}{2}\%$ in 2021 and 2022 (see Table 3). This forecast demonstrates that, according to our calculations, following the deep slump in 2020, it could take years before the tourism demand levels of 2019 are reached again. In this catching up process, we have to take into account that the consumer and travel behaviour will adjust step by step to a 'new normal' and the 1:1 return to the pre-crisis behaviours seems to be unlikely.

For the sluggish recovery of tourism demand, many factors play a role:

Despite the gradual lifting of containment measures, the given consumer mistrust of the safety of mass transportation, overrun tourist attractions, restaurants and events, plus the facts of high unemployment rates and that disposable incomes will expand only at a slow rate because of higher taxes and/or lower public spending will impede any significant stronger expansion of tourism

demand (Zenker and Kock, 2020). Additionally, precautionary saving will decrease only slowly, which will impede the growth of tourism demand. We expect also that the mistrust of mass transportation will result in shorter travel distances as tourists will prefer partly for safety reasons and risk minimization to stay in their own country and travel using their own car to known nearby destinations.

An open question is whether social distancing between people in restaurants, trains, aeroplanes, buses, etc. might trigger price increases or quality declines as businesses fail to meet their breakeven occupancy levels at pre-crisis price levels (Tsionas, 2020). Further, it is uncertain how consumers will react to the required distance rules, as these may take away the 'fun factor' of leisure consumption: questions arise as to whether tourists can live with a certain loss of fun or whether certain leisure consumption gets reduced?

Many workers have been protected from unemployment by the possibility to escape under the furlough umbrella. By now, it seems unlikely that all can return to their former working places and can stay there for an extended time in a stable employee–employer relationship, as business and process flow models have changed in the interim. As a consequence, the unemployment rate will increase while some of these furloughed former workers struggle to quickly find another position. All this will dampen the income situation and the economic expectations and so too the growth of tourism demand.

Further, the financial losses of firms will have negative effects on business travel as virtual meetings might be preferred over travel for cost-saving reasons and risk minimization. Similarly, virtual conferences might displace traditional conferences to save on travel costs and to mitigate infection risks.

All these additional factors such as changes in consumer and travel behaviour, changes in business models for process flows and the organization of meetings as well as financial problems might weaken but will not disappear in 2021 and 2022 and could conspire to dampen the recovery and result in a slower growth of real tourism imports than that calculated above.

In the *pessimistic scenario*, it takes longer to control the pandemic in 2021 compared to the modest optimistic scenario because of a stronger flaring up of contagions as a result of new contagious variants of the coronavirus and/or a slow rollout of vaccinations.

The planned vaccination of the population starts sluggishly due to slow vaccine production as well as organizational, distributional and technical deficiencies. Consequently, the pandemic fades out only slowly, and it takes until the end of 2022 before the infection wave is considered under control. Stricter containment measures imposed for much longer and stronger requirements of social distancing lead to increased savings caused by restricted consumption possibilities and weaken the consumer and investment climate. However, the containment measures applied show smaller effects in improving the health situation than in spring 2020 because a total lockdown was avoided by the governments and partly because people learned to circumvent the restrictions to a certain degree.

In this downside scenario, we are also confronted with increasing precautionary saving and risk-related retention of investments, reflecting low consumer confidence, increased uncertainty and worsening conditions for financing investment projects (EC, 2020b). Many companies have fears of an extended period of rigorous containment measures, particularly in sectors in which activity would be severely restricted again such as hotels, restaurants or other businesses with personal contacts, whereby the risks of bankruptcies as well as job losses are increasing.

Financial losses of enterprises and private households, flat consumption and investment behaviour, and increased precautionary saving massively impede the expansion of the economy. As a result, economic activity will start to recover sluggishly during the third quarter of 2021 and get gradually stronger in the course of the forecasting horizon. The very modest GDP growth of 2¼% in

the eurozone in 2021 and the higher growth rate of 3¼% in 2022, on top of the low base in 2020, means that GDP would remain around 1% below the 2019 level at the end of 2022.

As a consequence of the unfavourable economic situation, the increase in real tourism imports is only 3½% in 2021, but stronger in 2022 (5½%). In the pessimistic scenario, the changes in consumer behaviours dampen tourism demand stronger than in the modest pessimistic scenario.

In the *optimistic scenario*, we assume that the confidence of households and firms improves significant from early spring 2021 onwards. Although restrictions to mobility are not lifted, the fast vaccination of a broad swathe of the population and the uninterrupted step-by-step fading out of the infection (including the side effects of the virus mutations) promise the imminent relaxation of distancing measures and other restrictions. As a result, consumer confidence increases and saving rates decrease gradually towards 2019 levels so that the propensity to consume increases and drives an increase in investments. The latter is also aided by perceived reductions in investment risks. Further, the external environment of the eurozone improves through increasing exports possibilities.

After a slightly decrease in the first quarter, the quarterly growth rate of the euro area would likely exceed 3% against the previous quarter in the second quarter, mostly on the back of a boost from consumer spending (EC, 2021a). The performance in the third quarter would be similarly significant because of a strong tourism summer season. As a result of a faster recovery in private consumption and business investments, real GDP growth rates are around 1½ percentage point higher than in the modest optimistic scenario in 2021 and at least ¼ percentage points higher in 2022 (Table 2). In the upside scenario, GDP of the eurozone is 2% higher in 2022 than the pre-pandemic level.

As a consequence of the improved economic situation relative to the modest optimistic scenario, real tourism imports increase in the FGP by 8% in 2021 and by 6% in 2022. The recovery of outbound travel is supported by the positive development of disposable income and the improvements in the labour markets expressed by a decreasing unemployment rate. Additionally, the incremental fading out of the infection through a rapid vaccination programme and the relaxation of restrictions on social behaviour make travelling possible again and contribute to an increase of the travel propensity. The latter is also supported by the fact that consumer mistrust of the safety of mass transportation, tourist attractions, restaurants and events decreases with the outcome that travel distances also increase. Despite the more optimistic outlook of this scenario and the vigorous recovery of tourism demand, in 2022, the level of outbound travel expenditures will remain more than 50% below the values of 2019.

Conclusions

The COVID-19 pandemic and the containment measures imposed damaged the world economy severely. As a result of the literal free fall of demand and output, the global economy has plunged into a deep recession: world GDP decreased by 3½% in 2020 and the GDP in the eurozone shrank by 6¼%. Only in the Great Depression of 1929–1932, when GDP dropped by 11%, Europe had to face a stronger economic decline.

Tourism demand has seen a dramatic slump in 2020 as a result of the economic crisis and the implementation of containment measures: closed hotels and restaurants, travel agencies without business, cancelled air transportation, as well as mobility and contact restrictions which have hit the industry very hard as all key markets disappeared practically overnight. According to our calculations and assumptions, following the deep slump in 2020, it could take years before the tourism demand levels of 2019 are reached again. We acknowledge, however, that the recovery process could be faster and stronger depending on the fast vaccination of a broad swathe of the population and a strong recovery of consumer and business confidence.

Beside financial limitations, we recognize that the attitudes of tourists regarding the use of mass transportation, visiting crowded attractions, exhibitions, museums, sporting and entertainment events, restaurants and bars will play a critical role in the development of tourism demand until travellers or at least a big part of them are vaccinated. Further, it will also be important to consider how long it takes to produce vaccines (also effective against the different forms of virus mutations) in sufficient quantities to vaccinate a critical mass of people, minimizing organizational and distributional problems as well as solving the cooling problems for some vaccines. It will also be important to know how long the social distancing required between people in leisure facilities, restaurants, trains, aeroplanes, and buses stays in effect. Considering these impediments, many businesses will be unable to meet their breakeven occupancy levels at current prices, which could trigger price increases or quality declines. These tendencies might dampen demand even further and raise difficulties for businesses in price-elastic segments.

The expected recovery in 2021 depends critically on the pandemic fading, as the perceived slowing down of the pandemic will be necessary to restore consumer and investor confidence. There are also extreme uncertainties around the strength of the recovery. It is entirely possible that the economic recovery could be weaker than expected as it takes longer to restart production and markets and/or that the pandemic could turn out to be more persistent than assumed. Moreover, the effects of the health crisis on economic activity and financial markets could turn out to be stronger and longer lasting, testing the capacities of central banks to backstop financial systems and further raising the fiscal burden of the shock. Evaluating the risks mentioned above, we have to take into account that hopes of developments based on the modest optimistic or optimistic scenario could easily be dampened or disappear and we get closer to the view of the pessimistic scenario. On the other hand, we have to consider that a recovery marked by fast-progressing vaccinations together with a strong pickup in economic growth and confidence leads to a much bigger increase in tourism imports, which will exceed our expectations in the optimistic scenario.

We cannot use experiences from other similar events to estimate the consequences of a pandemic such as the COVID-19 crisis for the world economy and the tourism and leisure industries, as the conditions producing the dramatic slump in international tourism demand are unique; the present crisis has had a global and all-encompassing impact for both social and economic life.

Quite apart from the general uncertainty and the difficulty of making accurate forecasts, it needs to be noted that parameters estimated with conventional models might fail to capture demand response due to strong volatilities in economic activity. To increase the validity of our estimations, we used recent research results and employed a model allowing for asymmetric income effects.

The consideration of asymmetric income effects such as significant lower income elasticities in FGPs than in SGPs has special influence in times of crisis, such as the current COVID-19 crisis, where the economy and as a consequence, tourism also suffers dramatically. In such situations, both consumers and investors behave quite differently than in 'normal' recessions or slow growth periods and reduce their non-necessary expenditures according to the high income elasticity as much as possible to mitigate liquidity problems. Also, in a following recovery period, we have to consider that precautionary saving and austerity tendencies in public finances will limit tourism demand development because of the weak development of disposable income.

Further research should focus the COVID-19 effects on a disaggregated level as the setting of the containment measures were different by timing, length, characteristics, geographical area (region and country) and strength from country to country. To answer this question, we need disaggregated studies based on quarterly data for comparing specific scenarios between the countries, the different time lags connected to the direct impacts of the containment measures on the import demand and the indirect impacts over the GDP effects.

Future research will be challenged to analyse the expected changes in consumer and travel behaviours with the ultimate goal of developing new business models using innovative approaches to deal with the 'new normal'. Further research should deal with whether experiences with virtual meetings during the COVID-19 crisis will restrict conference, business and event tourism and transform the old patterns of meetings. This might have a severe influence on city tourism, as conventions, business meetings and events are significant contributors to regional value added and employment. Considering the latter facts, city (tourism) managers and researchers will be challenged to identify other business fields that replace the value added and employment losses of the ongoing structural changes in favour of not crowded areas.

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Note

1. Euro Area: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal Slovakia, Slovenia, Spain.

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