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Research note

Monitoring tourism flows and destination management: Empirical evidence for Portugal

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Abstract

We propose the use of a tool recently introduced by Gayer (2010), known as the “economic climate tracer”, to analyze and monitor the cyclical evolution of tourism source markets to Portugal. Considering the period 1987–2015, we evaluate how tourism to Portugal has been affected by economic cycles. This tool is useful as it clearly illustrates the evolutionary patterns of different markets, and allows us to identify close relationships with economic fluctuations. We found that German tourism plays a leading role, since its movements are followed with delays by tourism flows from other countries, and exhibits higher resilience to shocks. Also, domestic and Spanish tourism have both displayed less irregular behaviors than tourism from other source markets. On the contrary, tourism from the Netherlands and the UK, have displayed irregular patterns, which demonstrates the urgency to diversify tourism source markets to reduce the country’s vulnerability to external shocks and economic cycles.

Keywords:
Tourism cycles
Tourism demand
Portugal
Crises

1. Introduction

Business cycles are recurrent phenomena in all economies and are transversal to all economic sectors. Tourism is not an exception, as this sector is particularly vulnerable to economic fluctuations. This vulnerability reinforces the relevance of developing tools that allow for a clear understanding of the sector’s cyclical stance in order to inform the authorities and to manage the adoption of measures to diversify and, simultaneously, to reduce the country’s dependency on a reduced number of tourism source markets. This issue is of particular importance for Portugal as tourism plays a central role on the country’s economic performance. According to the World Travel and Tourism Council (WTTC) (2013), the total contribution of tourism to GDP in 2012 was USD 26.4 billion, corresponding to 15.9% of GDP, and it is expected to grow by 1.6% per annum to USD 31.0 billion, corresponding to 6.3% of GDP, by 2023. The total contribution to employment was 860,500 jobs in 2012, or 18.5% of total employment and it is expected to grow 1.0% per annum to 954,000 jobs, or 20.7% of total employment, by 2023. About a quarter of foreign investment is motivated by tourism trade. These figures provide an overall picture of the importance of tourism for Portugal. Both the increasing number of tourists and the sector’s strategic importance have led Portuguese economic and political agents to pay special attention to this sector by taking active measures towards its sustainability. It is therefore not surprising that private and public organizations are increasingly interested in obtaining a deeper understanding of the tourism cycles of the main origin markets and monitoring their evolution.

Over the last decades business cycle regimes have been implicitly taken into account in the analysis of tourism with...
different objectives (see, *inter alia*, Andraz, Gouveia and Rodrigues, 2009; Collins & Tisdell, 2004; Crouch, 1996; Witt & Witt, 1995; Lim & McAleer, 2002; Lim, 1997; and Ramos & Rodrigues, 2013). Most of these studies have focused on the tourism demand side and little attention has been devoted to the effects of different regimes on the tourism supply side. Research on tourism cycles was, to the best of our knowledge, first considered by Gouveia and Rodrigues (2005). This article provides a dating approach of the tourism demand cycle based on the method described in Harding and Pagan (2003). Using concordance and recursive concordance indices, Gouveia and Rodrigues (2005) establish a strong degree of cycle synchronization between tourism and economic cycles and identify delay effects between them. In a recent study Guizzardi and Mazzocchi (2010), using a structural time series approach, also conclude that tourism demand is driven by delay effects of the overall business cycle. Therefore, a better understanding of the cyclical stance of tourism to Portugal and how each market has reacted to the major turning points, accounting for their heterogeneous behavior to regime changes, is of great relevance to tourism agents when looking for source markets. This paper aims to provide such valuable information regarding domestic tourism and tourism coming from the main international source markets to Portugal—Germany, the Netherlands; Spain and the United Kingdom (hereafter UK).

Methodologically speaking, in this paper we consider the “economic climate tracer” proposed by Gayer (2010) and apply it to the series of the monthly number of overnight stays of tourists in Portugal. The approach consists on the graphical representation of the standardized level of a smoothed indicator, in this case based on the Hodrick and Prescott (1997) filter in order to eliminate short-term fluctuations, on its month-on-month changes. The resulting diagrams can be divided into four quadrants, allowing for the association of the temporal evolution of the smoothed variables to the different phases of the tourism cycle.

The rest of the paper is organized as follows. In Section 2 we present the data and a rigorous description of the methodology used in the analysis. In Section 3 we discuss the main results in terms of each market position with respect to the tourism cycle and briefly describe the major events that have likely been at the origin of the major turning points. In Section 4 we report the main conclusions and lessons for tourism destination management as well as the limitations of our approach.

## 2. Data and methodology

### 2.1. Dataset: sources and description

The data used in this paper correspond to monthly overnight stays in hotels, apartment hotels, tourist apartments, tourist villages, motels, bed and breakfasts, inns, guest houses and camping parks of domestic tourists and international tourists coming from the UK, the Netherlands, Germany and Spain. These series are used as a proxy for tourism activity (hereafter tourism). The option for using the length of stay as a proxy for tourism was dictated by the lack of consistent information on other variables, such as, e.g. tourists’ expenditures. However, this variable has been widely used in literature focused on the evaluation of tourism (see, for example, Aguayo, 2011; Dritsakis, 2004; and Archer & Fletcher, 1996). This proxy for tourism has also been used in recent works (see e.g. Paci & Marrocchi, 2014; and Cortés-Jiménez, 2008), as it reflects the length of stay and therefore provides information about the occupation rate of tourism facilities. In this way, it can be more informative than other variables, such as the number of arrivals, which do not provide information on such dimensions, or tourism expenditures, for which decisions on the adoption of price deflators can be an issue.

This study uses data covering a long period, from January 1987 to September 2015, during which several economic downturns have occurred. This period provides a rigorous picture about the reactions of tourism from different source markets to Portugal and, thereby, allows us to identify general trends.

The data were collected from the annual issues of Tourism Statistics (INE, 2008, 2009, 2010, 2011), published by Statistics Portugal (the national institute of statistics in Portugal). Summary statistics of these variables are provided in Table 1 and they reflect the relevance of the source markets considered.

Overall, the five source markets considered represent around 75.0% of the total number of overnight stays in the country. The first position belongs to domestic tourism with an average of 30.9% over the period under analysis, and is followed by the UK with an average of 19.7% and Germany with an average of 12.5%. The last positions are shared by the Spanish and the Dutch markets, which together represent an average close to 12.0% of the total number of overnight stays in the country. By considering three sub-periods, we identify interesting trends, which are quite informative on the reactions of the different tourism segments. We notice steadily decreasing patterns in tourism coming from Germany, the UK and the Netherlands, and increasing trends in the number of overnight stays of domestic and Spanish tourists.

### 2.2. The tourism cycle tracer

The methodology used to analyze the cyclical evolution of tourism in Portugal is inspired in the economic climate tracer developed by Gayer (2010). The approach consists of the graphical representation of the standardized level of a smoothed indicator computed using the Hodrick and Prescott (1997) filter (in order to eliminate short-term fluctuations) on its month-on-month changes. The standardized levels of tourism on the y-axis are plotted against their month-on-month changes on the x-axis. This approach provides an attractive visual tool for the inspection of tourism series through circular movements across the four quadrants of the graphs, corresponding to the four growth cycle phases. These phases can be characterized in a counter-clockwise rotation as follows: above average and increasing (upper-right quadrant, corresponding to “Expansion”), above average but decreasing after having reached the peak (upper-left quadrant, corresponding to “Downswing”), below average and decreasing (lower-left quadrant, corresponding to “Recession”) and below average but increasing after having passed the trough (lower-right quadrant, corresponding to “Upswing”). The peaks occur in the upper center of the graph, in the transition from “Expansion” to “Downswing”, while the troughs are located in the lower center, in the transition from “Recession” to “Upswing”. Therefore, the resulting diagrams can be divided into four quadrants allowing, in this way, for the association of the temporal evolution of the smoothed variables to the different phases of the tourism cycle: the first quadrant corresponds to the expansion phase and is observed when the standardized series are above their means and increasing; the second quadrant indicates that the cycle entered in downswing, i.e., when the standardized series are above their means but decreasing; the third quadrant indicates recession since it corresponds to the case where the

| Period      | Germany | Netherlands | UK  | Spain | Portugal | Total  |
|-------------|---------|-------------|-----|-------|----------|--------|
| 1987–1999   | 14.94%  | 5.50%       | 20.85% | 6.16% | 28.81%   | 76.30% |
| 2000–2009   | 11.08%  | 4.97%       | 19.52% | 6.72% | 32.18%   | 75.10% |
| 2011–2013   | 9.26%   | 5.21%       | 16.47% | 8.01% | 31.24%   | 70.19% |
| Average     | 12.46%  | 5.22%       | 19.71% | 6.65% | 30.94%   | 74.98% |

Table 1 Percentage values of overnight stays by source market.
standardized series are below their means and decreasing; and finally, the fourth quadrant indicates that the cycle entered into an upswing as the standardized series are below their mean but increasing. This classification follows the conventional notion of the business cycle and offers a simple and clear method to characterize the development of economic indicators throughout the cycle and may also be used as a monitoring tool for destination management when applied to the number of overnight stays.

3. Empirical analysis

3.1. World economic crisis and the tourism cycle

The tourism industry is not immune to shocks caused by economic fluctuations or financial instability (see Neumayer, 2004). On the contrary, it is very sensitive to these shocks as they impact negatively on tourists’ confidence and income. The uncertainty about the economic evolution in each country is regarded with caution and imposes serious limitations to tourism flows. However, the reaction of economies to shocks can be quite diverse given the structural and political differences they exhibit and consequently the impact on destinations can differ depending on the composition of the tourism source markets “portfolio”. To understand the evolution of tourism it is important to review the world events that occurred over the last decades and which clearly marked the tourism world cycle. Fig. 1 displays the cycle of visitor exports 1. The early 1990’s were characterized by successive fluctuations of tourism worldwide. This instability translated into a deep recession in the early 2000’s. After a recovery period until 2007, tourism suffered again a downturn, but from 2010 onwards there was an oscillating recovery.

The evolution of the tourism cycle (Fig. 1) mirrors the chronology of the economic crisis of the National Bureau of Economic Research (www.nber.org/cycles.html). The recessionary periods in tourism observed in Fig. 1 were motivated, or at least were partially explained by a series of unusually deep and sequential negative events that hit the world economy in the 1990s and the 2000s. Among them there is the European Monetary System (EMS) currency crisis in 1992 and 1993, which were precipitated by the German reunification in 1990, followed by the subsequent raise of German interest rates, which seriously affected large European economies like the UK and France. The 1990s were also the stage for crises that started in specific regions of the world but soon spread across the globe, such as the Asian crisis in 1997, the Russian crisis in 1998 and the Brazilian crisis in 1999 which, in turn, spread out to Argentina. In general, these crises were caused by short-term in 1998 and the Brazilian crisis in 1999 which, in turn, spread out to across the globe, such as the Asian crisis in 1997, the beginning of armed conflicts (the invasion of Afghanistan in October, 2001; and the war in Iraq in Spring, 2003), natural disasters (the tsunami in the Indian Ocean in December, 2004) and also the severe acute respiratory syndrome (SARS) outbreak in November, 2002. The recent financial crisis that broke in the US in 2007 has spread to all economies generating serious effects on employment and domestic demand. Therefore, the impacts on the tourism industry were unavoidable. All these events have lead tourists to reduce their travels or change destinations and, therefore, they deeply marked tourism demand.

3.2. The domestic demand cycle

The impacts of crisis on destinations are more or less pronounced depending on the impact of events on the source markets responsible for the main tourism flows. It is unquestionable that all countries were impacted by the worldwide events responsible for the up- and downswings in world tourism. That is, in all countries there are downswings in tourism flows over the periods 1990—1995, 2000—2005 and recently since 2007. These movements are possibly more pronounced in some countries than in others, which clearly suggests that countries have reacted differently to external shocks. If this is the case, this information is obviously of valuable importance to tourism agents in Portugal since it can be a guide to identify which source markets are less sensitive to external shocks and to endeavor efforts to maintain and/or increase tourism flows from those countries, and which markets are more prone to those shocks in order to look for market diversification. The tracer that is used in this paper can therefore be a useful tool for the analysis of the degree of resilience of the source markets to crises.

Fig. 2 illustrates the evolution of the domestic tourism cycle in Portugal. We observe that domestic tourism remained in the expansion quadrant over the 2000s, reaching the peak by the beginning of 2010. Since then, and after a short decline as a result of the economic and financial crisis that culminated with political and economic austerity measures, we notice a recovery reflected in the steady location of the demand in the first quadrant, exhibiting increasing growth movements. This evolutionary behavior of domestic tourism to Portugal reflects, although with different magnitudes, the negative effects of the different crises that impacted

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1 The visitor exports data was obtained from the World Tourism and Travel Council (www.wttc.org).
the World tourism cycle. However, the negative effects of the recent financial crisis on domestic tourism were not very pronounced when compared to foreign tourism.

Domestic tourism in Portugal is obviously not independent of the structural economic context the country has experienced. Since 2002 Portugal has been going through a problem of economic stagnation with an annual economic growth of less than 2.0% (lower than the EU average). It recorded a zero growth in 2008, followed by a 2.9% contraction in 2009 (European Commission, 2014). Due to the economic downturn and the fiscal stimulus packages in response to the crisis, the fiscal balance deteriorated to a record deficit of 9.9% and 10.2% of GDP in 2009 and 2010, respectively (OECD, 2014). Since 2009 Portugal has faced an economic recession together with a continuous growth of public debt, austerity policies, nationalization of banks, and difficulties in deficit control. The low growth rates and the successive deficits implied an increase of the public debt from 50.7% in 2000 to 108.2% in 2011 (European Commission, 2014). As a result, the Moody’s Investors Service and other rating agencies cut Portugal’s sovereign bond rating in the summer of 2010, which led to an increased pressure on the Portuguese government bonds. This brief description highlights the devastating effects of the global crisis on the Portuguese public finances and economy. From the late 2009, fears about the ability of the country to fulfill its sovereign debt liabilities dictated the raise of risk premiums to a point where the access to capital markets was no longer an option and a debt default soon became imminent. This context dictated the urgency in negotiating a bailout in the form of a memorandum of understanding with the consortium composed by the European Commission, the European Central Bank and the International Monetary Fund (known as “Troika”) and severe austerity measures that have led to a substantial increase of unemployment and significant wage reductions. This crisis has been by far the most devastating to the Portuguese economy, and it has originated inevitable effects on tourism from the Netherlands and Spain in their movement to the downswing and upswing quadrants, reporting reductions in growth and levels, until they finally reached the expansionary quadrant by mid of 2000. Tourism from the Netherlands continued to report large volatility over the 2000s. Over the first half of 2000 it moved to the downswing quadrant and then to the expansion quadrant, reaching the peak by the end of 2013. We also notice a strengthening of this ascending movement up to 2015. Tourism from Spain moved to the expansion quadrant in 2005, reached its peak in 2010, and after a short passage through the downswing quadrant, it registered an inversion towards the expansion quadrant. The behavior of tourism from Germany and the UK (Fig. 3a and d, respectively) also followed similar, but smoother, patterns. In fact, tourism from Germany entered the expansion phase by the middle of the 1990s and reached the peak by the end of 1999. Tourism from the UK entered the expansion phase by mid of 2000. Tourism from these countries to Portugal enacted a similar path over the 2000s moving together to the recession quadrant by the end of 2007. Tourism from these countries to Portugal enacted a steadily recovery trajectory by 2010 until 2015.

The second aspect that emerges from the data is the leading role of tourism flows from Germany, motivated by a smooth evolutionary path and continuous high growth rates over the 1990s. This growth engine explains the fact that German tourism flow path is one-step ahead of the other source markets. Tourism from Germany moved to the expansion quadrant and reached the peak in the 90s, long before tourism flows from other markets. We also notice that the recession period tourism flows experienced over the first half of 2000s was felt by German tourism earlier and with shorter duration. Therefore, it seems that tourism from Germany is more resilient to crises and that its trajectories are followed by tourism from other source markets.

3.3. The international demand cycles

Fig. 3 illustrates the evolution of the international demand cycle dynamics of the four main source markets to Portugal from January 1987 to September 2015. As before, all series were smoothed through the Hodrick-Prescott filter to eliminate short-term fluctuations. The smoothed series are then plotted against their month-on-month variation.

The graphs in Fig. 3 report the dynamics of tourism flows from the international source markets considered, which drive tourism from the lower quadrants to the upper quadrants. Two main distinctive aspects emerge from the graphs, which cannot be dissociated from the economic and political context experienced by markets over the sample period. The first is related to the distinctive movements reported by tourism flows in their trajectory across quadrants. Starting from the upswing quadrant (fourth quadrant), in the early 1987 tourism flows to Portugal enacted positive growth trends with level increases over the 1990s. These movements toward the expansionary quadrant (first quadrant) were shared by tourism flows from all sources, although with episodes of short cycles that constitute the main distinctive feature among source markets. These short cycles were observed in tourism from all sources, with the exception of tourism coming from Germany, which exhibited positive and increasing growth rates (Fig. 3a). These short cycles translated into rather irregular paths in the case of tourism from the Netherlands and Spain in their movement towards the expansion phase (Fig. 3b and c, respectively). In fact, their paths were characterized by the occurrence of successive and persistent mini-cycles with recessive movements towards the recession (third quadrant) and upswing (fourth quadrant) quadrants, reporting reductions in growth and levels, until they finally reached the expansionary quadrant by mid of 2000. Tourism from the Netherlands continued to report large volatility over the 2000s. Over the first half of 2000 it moved to the downswing quadrant and then to the expansion quadrant, reaching the peak by the end of 2013. We also notice a strengthening of this ascending movement up to 2015. Tourism from Spain moved to the expansion quadrant in 2005, reached its peak in 2010, and after a short passage through the downswing quadrant, it registered an inversion towards the expansion quadrant. The behavior of tourism from Germany and the UK (Fig. 3a and d, respectively) also followed similar, but smoother, patterns. In fact, tourism from Germany entered the expansion phase by the middle of the 1990s and reached the peak by the end of 1999. Tourism from the UK entered the expansion phase in the second half of the 1990s and after a short cycle, reached a peak in 2006. These countries followed a similar path over the 2000s moving together to the recession quadrant by the end of 2007. Tourism from these countries to Portugal enacted a steadily recovery trajectory by 2010 until 2015.

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To better understand the cyclical dynamics just described, as well as the apparent leading role of the German tourism flows to Portugal, it is useful to briefly characterize the economic context of each source market. The ascending path of tourism from Germany over the 90s (Fig. 3a) coincides chronologically with the huge economic growth observed in the aftermath of the country's reunification (Gromling, 2008). Between 1990 and 1992, the German average real GDP growth was 4.5%, which exceeded its long-term average. However, in the following period, Germany enacted an adjustment process towards its long-term potential growth with lower growth rates. Over the second half of the 1990s,
the average GDP growth rate was almost 1 and 2 percentage points lower than that of the EMU/EU countries and the United States, respectively, while the annual average increase in employment in Germany fell short of that of the US. This context coincides with an inversion path of tourism flows to Portugal, which dictated the end of the expansionary path and the occurrence of the peak by the end of the decade. At the beginning of the 2000s, the German economy practically stagnated. The lowest GDP growth figures were observed in 2002 (+1.4%), in 2003 (+1.0%) and in 2005 (+1.4%), together with high unemployment rates. These problems, together with the country’s aging population led to the implementation of a set of reforms, which have become known as Agenda 2010. The contraction of the German nominal GDP in the second and third quarters of 2008 drew a scenario of technical recession following the path observed at the global and European scales. The German Government’s response to this downturn path translated into the approval of a package of economic stimulus measures to prevent the unemployment rates to rise. Over this period, we observe a downturn of tourism flows to Portugal and the first signs of economic recovery started to emerge in 2010 and are reflected in Fig. 3a through persistent movements towards the boom quadrant.

We notice that the German tourism cycle is similar to those of the UK and the Netherlands. They all exhibit a contraction at the beginning of the 2000s which came to an end ten years later, around 2010. The British economy registered a period of more than 10 years of continuous economic growth, from the mid-1990s to 2005. The downturn that followed imposed huge oscillations in British tourism to Portugal, which attained the peak just before the recent financial crisis (Fig. 3d).

Tourism from the Netherlands and Spain were also particularly affected between 1990 and 1995 (see Fig. 3b and c, respectively). In both cases, there were significant reductions in levels and growth rates and both end in the upswing quadrant in the second half of the 1990s. The Dutch tourism moved to the boom quadrant and reached the peak around 2000. This movement is coincident with the strong performance of the Dutch economy in the second half of the 1990s, which is referred to as the “Dutch Miracle”. Real GDP growth reached 3.7% on average (clearly above the European Union average of 2.7%). The unemployment rate dropped from 6.6% in 1996 to 2.5% in 2001. This positive conjuncture is reflected in a positive evolution of tourism to Portugal. This economic boom appears to have been mainly motivated by an overheating of the economy, but the slowdown that followed seems to have been the result of the global downturn and the turmoil in financial markets, and consequently tourism suffered a reduction in levels and growth. In fact, we observe that tourism flows moved to the downswing quadrant around 2001 recording continuous reductions in levels up to 2005. However, as a result of the efforts on public finances’ consolidation, the country reached a government surplus of 0.6% by the end of 2006. This economic performance also
generated positive effects on tourism, as it crossed the border to the expansion quadrant where it has remained up to 2015, although slightly affected by the 2007 financial crisis.

Tourism from Spain exhibits a similar pattern. After having stepped backwards in the periods 1990–1995 and 2005–2010 it entered the boom quadrant in the second half of the 2000s. However, the recent financial crisis has imposed a slowdown by 2007. We observe a reduction in levels and growth rates and the peak was reached in 2010 after which tourism moved to the downswing quadrant. However, the Spanish tourism flows rapidly returned to the expansion quadrant, having registered increasing growth rates in the last years.

Our results show that tourism source markets to Portugal react differently to economic adverse shocks depending on internal economic and political particularities and that tourism from Germany seems to have a leading reaction to economic fluctuations.

4. Conclusions

In this paper we illustrate the usefulness of the approach introduced by Gayer (2010), known as the “economic climate tracer” to analyze and monitor the cyclical evolution of tourism demand, through the application to Portugal. We analyze the tourism flows of domestic tourists and tourists coming from the main international source markets - Germany, the Netherlands, Spain and the UK - which together represent on average 75.0% of the total number of overnight stays in the country. It is shown, through the analysis of the economic evolution in the tourism source economies from 1987 to 2015 that the climate tracer is a useful tool to illustrate the evolutionary patterns of the different markets and therefore an important source of information to support economic and policy agents in decision making.

This analysis highlights three relevant issues. First, we concluded that tourism flows from Germany, the Netherlands and the UK exhibit decreasing trends over the period under analysis, whereas domestic tourism and Spanish tourism report increasing trends. Second, tourism from all source markets, including the domestic market, reported levels below the average with increasing growth rates by the end of the 1980s, and all are currently reporting growth rates and levels above their averages. Third, in-between, tourism flows from different source markets to Portugal depicted different behavior paths which are not independent of the economic and financial environments in each country.

Domestic tourism and tourism from Spain exhibited the less irregular patterns in their evolutionary path between 1987 and 2015. Despite the two recession episodes in 1995 and 2007, which are certainly a result of economic recessions, they followed rather smooth and similar trajectories. Possibly, the crises episodes over the 1990s and 2000s have impacted on the decisions of traveling, leading tourists to choose closer destinations. This could possibly explain the less irregular patterns of the Portuguese and Spanish tourism. Tourism from the Netherlands, the UK and Germany reported larger oscillations, revealing thereby higher sensitivity to economic cycles. We also noticed that tourism from Germany has played a leading role since its movements seem to have been followed by other source markets.

In general, this paper provides evidence that there is a narrow relation between economic context and tourism flows to Portugal. Recession periods dictate tourism contractions, while economic expansions are reflected in persistent increases of tourism flows. It also provides evidence that markets react differently to economic and political, or even terrorist events. The domestic and Spanish tourism are segments that may mitigate external adversities, and therefore, the investment in advertising campaigns should be directed to these markets, while promotional actions should be reinforced in order to guarantee the sustainability of other international segments, for which Portugal has been a traditional holiday destination.

Notwithstanding, these results should be interpreted with caution. The source markets here considered are in different maturity stages. The evolution of tourism from different sources is perhaps not independent from their destination life cycle stages. Portugal has been a traditional destination for British tourists since the 1960s, while tourism from the Netherlands, or even Germany or Spain is more recent. Therefore, linking the evolutionary paths with the corresponding destination life cycle stages of each market may provide additional insights on the cyclical behavior of tourism and is left for future research.

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