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Managing tourist congestion: insights from Chinese package tours to the UK and Ireland

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ABSTRACT

The UNWTO notes that the successful management of tourist congestion is highly dependent on controlling travel demand. It is surprising, therefore, that demand management has been largely overlooked in the tourism literature, as have the roles of both tour operators and package tours in contributing to congestion or overtourism. Tour operators wield considerable power in 'channelling' customers to certain destinations and consequently play a major role in contributing to unsustainable mass tourist congestion. This research visualizes the spatial patterns of People's Republic of China package tour itineraries at peak season to the UK, which is then confirmed by statistical tests. The study confirms the important role of tour operators and package tours in distributing tourists in the UK and in confirming and accentuating its 'hotspots'. It highlights the power relationships and the spatial dynamism in the formation of overtourism. The study makes recommendations for managing tourist congestion in the post-pandemic world in the UK and elsewhere, largely related to encouraging tour operators and travel agencies to diversify their tourist product offerings.

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Overtourism; package tours; GIS; China outbound tourism; travel itinerary

Introduction

The year 2020 and 2021 were extraordinary years. For the global travel industry this period witnessed an unprecedented decline, with travel and tourism's share of global gross domestic product falling from 10.4% in 2019 to 5.5% in 2020, a downturn of $4.5 trillion, with the loss of 62 million jobs (WTTC, 2021). Due to unparalleled travel restrictions international tourist spending fell by 69.4% worldwide, with Asia-Pacific and Europe being the worst hit regions (WTTC, 2021). Whilst at the time of writing the industry has yet to recover, tourist congestion and the exponential desire for international travel has re-emerged as and when travel restrictions have been relaxed. For example, UK tourist bookings to 'amber-list' countries increased by 400% in the days after the UK government lifted quarantine restrictions in July 2021 and many tourism-reliant European destinations have been quick to welcome back international visitors, with Malta even offering them a cash incentive scheme (Coffey, 2021). In Asia, Chinese tourists crowded into visitor attractions when they reopened during the national Golden Week 2020 holiday. It appears that, far from COVID-19 ending tourist congestion, it has simply paused it, and therefore, the need for work critically reviewing congestion and its management remains as vital as ever.

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The term 'tourist congestion' encapsulates a familiar pre-COVID-19 problem seen at many destinations worldwide where tourists physically obstruct the natural flow of pedestrians, causing the flow to slow down or stop (UNWTO, 2004). This congestion can also occur when the flow or the number of visitors, is excessive in relation to the carrying capacity of the destination or site to accommodate that flow (Butler, 2019). Carrying capacity depends on the structure of the destination system and a range of geo-cultural features such as season, accumulated impacts and destination life cycle (Butler, 2019). 'Tourist congestion' is differentiated from 'overtourism'. The former takes a narrower scope focusing on the physical disruption of tourists to the natural flow of local pedestrians; hence it indicates a stronger sense of spatial distribution of mobility. The latter concerns the wider and intertwined social-psychological-economical-political impacts of receiving excessive tourists on the local community's quality of living, tourists' own experiences and other stakeholders' operations (e.g. Gössling et al., 2020; Peeters et al., 2018). Like crowding, 'tourist congestion' can be viewed as a significant trigger to overtourism, among other factors. As this study examines the spatial distribution of tourists by package tours, 'tourist congestion' is a more appropriate term, although in our discussion, where we consider our findings more broadly, we also refer to overtourism. A sustainable tourism industry depends on a reactive and proactive management of tourism flows (Pásková et al., 2021) at and through destinations and sites, providing residents with 'liveable' communities and allowing visitors time and opportunities to appreciate and enjoy the local culture.

Existing studies on tourist congestion and overtourism, as well as related destination management, largely focus on the phase when tourists arrive at a destination or attraction (eg. Brown et al., 2013). However, the World Tourism Organisation (WTO) (2004) identifies the main cause of tourist congestion as, not only poor visitor management at destinations and attractions, but more importantly at the phase of managing the travel demand *before* their trips. Congestion is inevitable if all tourists are advised to go to the same destinations and attractions at similar times. To alleviate the congestion, it is essential to understand and investigate the demand phase (Pásková et al., 2021): what tourist products are available to tourists in their home countries. That tourist choice is led by suppliers is well understood in the tourism literature. In addition to providing destination knowledge (Chen et al., 2013) and safety assurance (Jin & Sparks, 2017), travel agencies, tour operators and package tours are highly influential in directing tourists where to go, what to see and for how long. Thus, examination of the spatial features of package tour itineraries can help predict, and therefore, manage the extent of potential tourist congestion.

In addition to being overly focused on the congestion of visitors in situ, extant research tends to regard all tourist types as homogenously responsible for congestion (e.g. Grinberger & Shoval, 2019) and media reports around the world repeatedly focus on group package tours. Thus, the city officials of Cambridge (Lumby & Pengelly, 2018) and Oxford (Beard, 2017) in the UK identified large package tours of around 20 (and sometimes up to 50) visitors as the direct trigger of residents' antagonism. In Hong Kong, residents' attention turned towards group tourists to Kowloon City and Hung Hom (Siu, 2019). Regardless of these media reports and policy actions, very little research has investigated the cause of tourist congestion generated by package tours.

This study examines People's Republic of China (PRC) package tourists to the UK prior to COVID-19 and makes reflects on managing tourist congestion in the post-pandemic world. It investigates the package tours' spatial features and explores the extent of their similarity and how potentially this contributes to tourist congestion. Alongside the better-known cases of small European cities such as Venice and Dubrovnik, several UK cities suffer from tourist congestion, notably London, Oxford, Cambridge, and Bath. The last two decades saw unprecedented growth in Chinese outbound tourism. Since 2015, the Chinese market has generated 128 million outbound tourists and become the world's largest market (UNWTO, 2018). In 2019, with 155 million outbound tourists, their spending reached over $277.3 billion and was ranked 1st in spending in the world. A unique feature of Chinese outbound tourism is its reliance on package tours, accounting for over 80% of all outbound travel (excluding Hong Kong and Macau) (Zhang et al., 2011). Although by visitor volume China is only the UK's thirteenth largest inbound tourist market, it is the second biggest long-haul market

and the second largest spending ($2.4bn) (VisitBritian, 2021); the potential of the Chinese market has been clearly recognized by Visit Britain, the UK's Destination Marketing Organisation (2021).

Before the global pandemic, just over 880,000 Chinese inbound visitors visited the UK, almost 60% holiday makers travelling on package tours (VisitBritain, 2021). More importantly, like other international markets, Chinese holiday makers overwhelmingly visit the UK during July and September (VisitBritain, 2021), a seasonal peak often leading to negative media coverage. For example, several newspapers drew attention to Chinese package tours' role in contributing to tourist congestion. Thus, city officials in Cambridge commented that that 'Chinese tourists, arriving in big groups, sometimes up to 50 at a time, [were] leading to many tourists blocking the street' (Ferguson, 2018) and 'extending the waiting hours and reducing the capacity for other people' (Evening Standard, 2017). Due to COVID-19, visits from China to the UK decreased dramatically but are forecasted to recover to 2019 levels by 2026 (VisitBritain, 2021). In addition, a recent research showed that 86% of China's citizens continue to be enthusiastic about package tours in their future outbound travel plans (China Tourism Academy, 2019). The study reported here extends current understandings of congestion from the demand perspective. It provides insights into travel product development, constrains of tour operators and concludes with recommendations for the UK to develop proactive congestion management practices, which are also applicable to other destinations and tourist markets.

Literature review

Tourist demand management and tour operators

The successful management of tourist congestion needs to involve all the multiple stakeholders, which combine to constitute and deliver the tourist experience (Fyall et al., 2012). The visitor journey starts with choosing and travelling to the destination and comprises a set of experiences at it, including journeys to and experiences at individual attractions. The stakeholders deliver, in sequence: demand management, destination management and attraction site management (UNWTO, 2004). If one of the management phases is poorly managed, tourist congestion can result. Of the three, demand management has been the most under-served by existing research. Yet, this important phase requires consumers to make significant decisions, including choosing a destination, a time of travel, whether to travel in groups or as individuals, and transport, accommodation, and budget choices. These decisions rely on the information provided by the demand-phase stakeholders, notably travel agencies, tour operators, tourism promotion authorities and includes electronic media and tour guide books (UNWTO, 2004).

The representational power of promotional brochures, images, discourses and agents are well established (see Morgan, 2014). For instance, Sæþórsdóttir et al. (2020a, 2020b) investigated how destination discourses on social media stimulated tourists' decisions to visit specific locations in Iceland, consequently causing overtourim in these areas. Similarly, Scarles (2004) took the case of the Scottish Tourist Board and articulated a chain of creative spaces of mediation involved in the discursive transformation of material landscapes into brochure images. The marketing personnel firstly provided specialist knowledge of consumer expectations and then photographers deployed photographic techniques to convey atmospheres and capture the consumers' imaginative interpretation. However, such emphasis on consumer choice masks the complex power relations that underpin the construction of travel discourses (Pritchard & Morgan, 2001). Tour package design depends heavily on the logistic, geographic and budgetary constraints of coordinating the tour components (e.g. transportation, accommodation). Tour operators must also balance operational and financial risks. In the context of Chinese package tours to Australia, Jin and Sparks (2017) stressed various operating factors to be accommodated, such as maintaining low prices, fitting into a tight timescale, ensuring safety and security, and including a choice of inclusive activities. Maintaining a low cost is dependent on offering standardized rather than customized products, and on the discounts generated from long-term contracts and integration with airlines and accommodation providers. Beyond the

operational scope, the oligopolistic structure of the tour industry further enhances market concentration and standardizes tour products (Davies & Downward, 2007).

Tour operators have more influence and power than the destination suppliers due to their considerable control of sales distribution (Curtin & Busby, 1999), vertical integration and superior knowledge of the market (Tapper, 2001). Mass tour operators are responsible for tourism concentration since they operate on economies of scale to maximize the number of tourists in destinations (Curtin & Busby, 1999). Overtime, they impact on destinations along the destination's life cycle (Debbage, 1990) as the facilities built during the mass tourism period will face overcapacity in the decline stage. Commodification of destination cultures is another well investigated, negative impact of mass tourism operators (Debbage, 1990). In addition, major tour operators can leverage their bargaining power to negotiate the lowest price, consequently a large percentage of tourist expenditure is lost to the host country. In some cases, where hotel and resort bookings are not prepaid, the collapse of a major tour operator (e.g. Thomas Cook in 2019) can cause serious financial consequences in destinations.

Consumers usually have considerably less information about destinations than tour operators. For instance, Chen et al. (2013) emphasized the information asymmetric existing between Chinese tourists and travel agencies. The tourists had to rely on the reputation of travel agencies when evaluating tour packages. and are prepared to pay a premium for the quality guarantee. Similarly, Wong and Kwong (2004) confirmed how the reputation of the travel agency and the service quality of travel agencies is critical to Hong Kong package tourists. Such scholars highlight that customer choice was not built on a knowledge of the destination but on the brand image of tour operators. In the context of Chinese tourists to the UK and other international destinations, several studies confirm that all-inclusive tours are the dominant form of travel to international destinations (e.g. Chen et al., 2013; Jin & Sparks, 2017; Jørgensen et al., 2018). Such reliance on tour operators is due to the Chinese market's relative inexperience of international travel, limited access to independent travel advice (Jørgensen et al., 2018), language barriers (Jin & Sparks, 2017), and price sensitivity (Chen et al., 2013). As such, the spatial distribution of Chinese package tourists in international destinations is largely determined by tour operators and the inclusive tour itineraries.

Proactive destination management approach

The destination management approach has evolved from the historic 'anthropocentric' (i.e. building facilities to meet tourist demand) and 'biocentric' (i.e. elimination of human disruption to nature) approaches to the current recognition of the need for a more harmonious coexistence of visitors and nature (Pásková et al., 2021). Indeed, overtourism is less caused simply by tourism growth and more by ineffective management (Sæþórsdóttir et al., 2020a, 2020b). To achieve a greater balance, the solutions lie in freeing up a destination's carrying capacity, which can be done through reactive destination management measures such as levying visitor tax and limiting visitor numbers. It can also be achieved through more proactive measures, including a tourism optimum scheme to identify and target the most profitable market with minimum tourist numbers and environmental disruption (Pásková et al., 2021). For instance, Oklevik et al. (2019) studied the international markets to Norway and identified Asian, the USA, Italy and The Netherlands as the optimum markets based on their overall economic generation from overnight-stays, high spending and favoured price perception and the Airbnb market as the least favourable.

Such proactive measures also require an understanding of the changes to relevant variables overtime. Sæþórsdóttir and Hall (2020) investigated the changes in visitor infrastructure use and their satisfaction at Landmannalaugar, Iceland in 2000, 2009 and 2019. While their study confirmed the perception of increased crowdedness among tourists, crowdedness alone did not necessarily cause dissatisfaction but was influenced by factors like types of engaged activities and market tolerance to crowdedness. In addition, proactive measures could also include adding new attractions to the existing tourist offer to enable a higher level of spatial and temporal distribution of tourist flows (Pásková et al., 2021). Additional attractions adjacent to already established ones can absorb tourist numbers,

whilst the diversion of tourist flows through adjustment to trails, signage and promotion can also ease over-crowding. The prerequisite to such proactive measures, however, is a good understanding of the spatial structure of tourism visitation to a destination, including where tourists visits, and the hotspot locations and their connectivity, neither of which are well understood to date.

Tourist spatial movements at destinations

Extant literature has investigated tourists' spatial movements at destinations but almost all studies focus on those of individual tourists (e.g. Grinberger & Shoval, 2019). Earlier work was concerned with inter-destination movement and tourists' spatial movement between one or more destinations (Lew & McKercher, 2006). Lue et al. (1993) identified five movement patterns: 'single destination', 'en route', 'base camp', 'regional tour' and 'trip chaining'. Oppermann (1995) added the 'open-jaw' and 'multiple-destination' loops. With the emergence of information tracking technology in recent years, McKercher and Lau (2008) identified 11 patterns based on territory, the number of journeys per day, the number of stops per journey, movement patterns, commercial tours and cross-border tourism. It is worth noting that in the case of cross-border tourism, tourists' flow patterns can naturally redefine the administrative boundary of a 'destination' and endorse places of interests with new functions specific to tourists' needs that may be different from their traditional functions (Paulino et al., 2021).

Whilst tourist time budgets play a key role, various demographics factors, and travel behaviour have been identified as determining the spatial patterns. These factors include age, frequency of visit, domestic or international travel, and availability of travel companions. Ji et al. (2021) found that tourists on longer breaks tended to cover more areas, visit more attractions, and participate in more activities than those on shorter breaks, although the formers' travel rhythms were slower than the latter. Similarly, in the context of Hong Kong, McKercher et al. (2012) discovered that the spatial distribution of first-time tourists was wider than those of repeat tourists as the former aimed to visit as many attractions as possible, spending less time at each attraction. Grinberger and Shoval (2019) identified additional factors such as choice of transport modes, elderly group members, travel purposes, and the hotel location and weekend effects.

In terms of the characteristics of the attractions visited, by comparison, repeat tourists appeared more selective and spatially more concentrated. Domestic tourists behaved more like repeat visitors in their spatial behaviour. They preferred natural attractions and social activities whilst international visitors, with less familiarity with and knowledge of the destination, preferred well-known attractions. In addition, the spatial configuration of the destinations also affects tourists' choice with the tendency to select the one with multiple attractions. Zhong et al. (2019) confirmed that the movements of tourists are concentrated at urban-based attractions rather than in remote areas, unless there are adjacent attractions located there, offering more sightseeing opportunities. Furthermore, it is also apparent that tourists tend to choose accommodation concentrated in historic centres (Cerezo-Medina et al., 2021), further adding to problems in honeypot locations, making them vulnerable to potential overtourism. Compared with individual tourists, package tours travel in big groups, (typically 50 people in a Chinese package tour group), and on fixed routes, hence undertaking heavier consumption of the 'common pool resources' in a short time (Sæþórsdóttir et al., 2020a, 2020b). Package tours can, therefore, quickly make a strong contribution to overtourism in already busy locations. It is, therefore, vitally important to identify the hotspots, paths and inherent connections associated with these tours to inform proactive destination management policy and practice (Pásková et al., 2021), an issue that this paper addresses.

Method

Data collection

To ensure sample representativeness, the Chinese package tour itineraries to the UK were identified from the list of the top 10 offline and top three online Chinese travel operators. The list was ranked

by the China Tourism Academy (2019), whose evaluation was based on market share, profitability, and operational performance. According to GF Securities (2017), the selected tour operators in this study accounted for 85% of the total outbound travel market. Next, group packages to the UK were retrieved from their official websites under the section of overseas travels. Data collection was conducted during July 2019, the beginning of the busiest season for Chinese outbound tours to the UK when all tour packages were available on the websites. A total of 41 initial itineraries were identified using the keyword 'UK' in the tour descriptions. Of these, 28 were excluded as they included other European countries rather than being focused solely on the UK and Ireland seven toured France and the UK, spending less than a quarter of the trip in the latter, and the rest toured at least three different European countries, spending less than a fifth of the time in the UK and usually only in London, Oxford and Cambridge. The remaining 13 itineraries (see Table 1) were retained as most of their sightseeing took place in the UK, with a very small duration in the Republic of Ireland (RoI). These 13 itineraries are responsible for half of the UK's annual total of 883,000 Chinese package tourists (VisitBritain, 2021).

As shown in Table 1, the samples were all-inclusive package tours with an average price of RMB 19,972 (approximately USD 3887), which covered return airfare, accommodation, all meals, and land transportation in the UK. The tours originated from the Tier 1 cities in China, mainly Beijing, Shanghai, Guangzhou, and Nanjing, which are the top four outbound tourist-generating cities in China. The average length of the itinerary was 11.3 days. The most common duration was 10 days, shared by Tong Cheng (TC), Caissa Travel (CT), China Youth Travel Service (CYT), China International Travel (CIT), Shanghai Spring International Travel (SSI), and China Comfort Travel (CCT). Tours of 11 days, 12 days and 13 days were each operated by two companies, separately as Zhong Xin Travel (ZXT) and Jin Jiang Travel (JJT); China Travel Service (CTS) and Ctrip; Beijing Tourism Group International Travel & Tours (BTG) and Tuniu (TN). Only Guang Zhi Lv (GZL) operated a 15-day trip. (The abbreviations are included in Table 2).

Data analysis

To understand the spatial characteristics of the Chinese package tours, the present study used multiple visualization tools, including hotspots, line density and direction distribution. The study also applied ANOVA to test the mean differences between different groups of tour packages. To identify hotspots, the first step was to digitize and aggregate the 13 itineraries into the Geographic Information System using ArcGIS Pro10.6. Each original itinerary was composed of a series of places of interest (POIs) (or 'stopping points'). A total of 188 POIs were identified. Each POI was then marked with its latitude and longitude and was summarized in an Excel spreadsheet. Thereafter, the spreadsheet was uploaded to GIS that aggregated single POI to corresponding destinations and mapped out the distribution of POIs across the UK and Ireland.

The second step was to identify the spatial concentration of POIs among these package tours. The hotspot analysis tool was employed to map the geographical concentration patterns of stops visited. This tool calculates the Getis-Ord G_i^* statistic for each feature (stopping points of itineraries) in a dataset and finds statistically significant hotspots as shown in Gi-Bin (G_i^*) scores. The Getis-Ord local statistic is given as:

$$G_i^* = \frac{\sum_{j=1}^{n} w_{i,j}x_j - \bar{X}\sum_{j=1}^{n} w_{i,j}}{s\sqrt{\frac{\left[n\sum_{j=1}^{n} w_{i,j}^2 - \left(\sum_{j=1}^{n} w_{i,j}\right)^2\right]}{n-1}}} \quad (1)$$

where x_j is the attribute value for feature j, $w_{i,j}$ is the spatial weight between feature i and j, and n is

Table 1. All-package tour itineraries to the UK operated by Chinese tour operators.

Name	The length of stay (days)	Average driving distance per day (km)	Total driving distance (km)	Package tour price (RMB)	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
Tong cheng (TC)	10	110.5	1105	17838	Nanjing–Frankf urt–London	London–Cambridg e–Windsor–Lond on	London	London	London–Stonehenge–Bath–British Village	Burton on the water–Stratford Upon Avon–Manchester	Manchester–Winderm ere–Gretna Green–British Town	Edinburgh	Edinburgh–Frankfurt–N anjing	Nanjing			N/A	
Caissa Travel (CAT)	Driving Distance Per Day (km) 10	111.5	966.4	9988	0 km Shanghai	170 km Shanghai–London–Cambridge–York–Small town in the UK	20 km Windermere–Manc hester	20 km Manchester–Glouces ter–Bibury–British Town	230 km Bourton on the water–Oxford	240 km Bicester–Windsor–Lon don	385 km London	20 km London	20 km London–Shanghai	0 km Shanghai	0 km	0 km	0 km N/A	0 km
China Youth Travel Service (CYTS)	Driving Distance Per Day (km) 10	119.6	1675	23800	0 km Beijing	354 km London–Cambridg e–York	149 km York–Edinburgh	257 km Edinburgh–Winderm ere Lake–Manchester	51.4 km Manchester–BBC studio–Stratford Upon Avon–Oxford	115 km Oxford–Bicester Village–Stonehenge–W indsor	20 km Windsor castle–Harry potter film company–London	20 km London city tour	0 km London–Beijing	0 km Beijing	0 km	0 km	0 km N/A	0 km
China Inter national Travel Limited (CITS)	Driving Distance Per Day (km) 10	139.4	1872	28000	0 km Nanjing–Londo n	345 km London–Cambridg e–York	340 km York–Edingburgh	380 km Edinburgh–St Andrews–Pitlochy–Inverness	315 km Inverness–Lake Ness–Fort William–Luss village–Glassgow	200 km Glasgow–Windermere District–Manchester	75 km Manchester–Stratford–Cotswolds district–Blemnheim Palace–Oxord	20 km Oxford–Windsor Castle–London	0 km London City Tour	0 km London–Nanjing	0 km	0 km	0 km N/A	0 km
Shanghai Spring Inter national Travelser (SSIT)	Driving Distance Per Day (km) 10	156	2185	14799	0 km Shanghai–Lond on	350 km London–Cambridg e–York–Small town in the UK	336 km Small Town–Edinburgh	270 km Edinburgh – Loch Lomond–Windermer e	240 km Windermere lake–Chester–Manch ester	300 km Manchester–Bicester Village–Oxford	266 km Oxford–Bath–Stone henge–London	90 km London–Windsor–L ondon	20 km London – Shanghai	0 km Shanghai	0 km	0 km	0 km N/A	0 km
China Comfort Travel (CCT)	Driving Distance Per Day (km) 10	216.2	1561	9599	0 km Being–Edinbur gh	340 km Edinburgh–York–Leeds	403 km Leeds–Cambridge–London	412 km London	355 km London	270 km London–Oxford–Bicester Village–Stratford–Birmi ngham	305 km Birmingham–Chester–Manchester–Winde rmere	80 km Windermere–Gretna Green–Edinburgh	20 km Edinbrugh–Beijing	0 km Beijing	0 km	0 km	0 km N/A	0 km
Zhongxin Travel Agent (ZXT)	Driving Distance Per Day (km) 11	160.1	2242	25800	0 km Beijing–Londo n	376 km London–Oxford–Stratford upon Avon–Birmingham	350 km Birmingham–Thoma s theme Park–Manchester	20 km Manchester–Winder mere–Carlisle	20 km Carlisle–Newcastle	215 km Newcastle–Whitby–Go athland–Pickerling–Yor k	317 km York–Cambridge–L ondon	243 km London City tour	20 km London–Birmingham–London	0 km London	0 km London–Windsdo r–Beijing	0 km	0 km N/A	0 km
	Driving Distance Per Day (km) 11	69	1250	22490	0 km	284 km London	220 km London	189 km	324 km	508 km	425 km	20 km	202 km	20 km	50 km Shanghai	0 km	0 km N/A	0 km

Jin Jiang Travel (JJT)					Shanghai–Lond on			London–Cambridge–Oxford	Oxford–Bicester Village–The Stratfrod–Manchester	Manchester–Windermere–Glassgow	Glassgow–Edinburgh–Glassgow	Glassgow–Cairn Lane (Ferry)–Belfast–Giants Causeway–Belfast	Limerick–Cliffs of Moher–Dublin	Dublin–Shanghai				
	Driving	Distance	Per Day	(km)	0 km	20 km	20 km	300 km	350 km	146 km	150 km	120 km	124 km	20 km	0 km	0 km	0 km	0 km
China Travel Service (CTS)	11	112	1569	23800	London	London–Oxford–Bicester Village	Costwolds–Manchester–Bronte passonage museum–Lake district	Lake District–Edinburgh	Edinburgh–UK's Villages	Arnik Town–York	York–Cambridge–London	Cambridge–Greenwic h royal observatory–London	London city tour	London–Winsdor–Beijing	Beijing			
	Driving	Distance	Per Day	(km)	0 km	20 km	120 km	337 km	194 km	100 km	324 km	359 km	20 km	20 km	0 km	0 km	0 km	0 km
Ctrip	12	118.7	1425	32400	Beijing–Londo n	London	London–Cotswolds	Cotswolds–Manches ter	Windermere Lake tour	Manor Tour–Edinburgh	Edinburgh–Newcastle	Newcastle–York	Cambridge	London tour	London–Beijing	Beijing	N/A	
	Driving	Distance	Per Day	(km)	0 km	20 km	120 km	245 km	20 km	300 km	195 km	142 km	258 km	105 km	20 km	0 km	0 km	0 km
BTG Inter national Travel & Tours	13	121.8	1705	16499	Beijing	Beijing–Edinburgh–Lake Disticts	Lake District–York–Lee ds	Leeds–Cambridge–London	London	London (Freedom Day)	London–Oxford–Cardiff–Small village in the UK	Small town–Cheshire–Live pool	Livepool–Holly–Dublin–Dundalk	Dundalk–Giant's Causeway–Belfast	Belfast–Dublin	Dublin–Beij ing	Beijing	N/A
	Driving	Distance	Per Day	(km)	0 km	194 km	172 km	350 km	20 km	20 km	279 km	50 km	349 km	83 km	168 km	20 km	0 km	0 km
(BTG) Tuniu	13	154	2008	17627	Nanjing–Helsin ki–London	London Tour	London tour	London–Windsor–Bicester Village–Oxford	Oxford–Burton on the water–Stratford upon Avon–Nottingham	Nottingham–Chartswort h House–York–Leeds	Leeds–Windermere–Scotland Village	Edinburgh–Glassgow	Glassgow–Cairnryan–The Giant's Causeway–Belfast	Belfast–Cliffs of Moher–Limerick	Limerick–Dublin	Dublin–Hel sinkin–Nanj ing	Nanjing	N/A
	Driving	Distance	Per Day	(km)	0 km	20 km	20 km	140 km	211 km	217 km	350 km	80 km	374 km	400 km	196 km	0 km	0 km	0 km
Guang Zhilv (COZL)	15	89.3	3027	16999	Guangzhou–Lo ndon	London–Cambridg e–London	London Tour	London–Windsor–Oxford–Swindon	Swindon–Stonehenge–Bath–Cardiff	Cardiff–Livepool–Man chester	Manchester–Windermere–Edinburgh	Edinburgh–Anstruther–St Andrew–Aberdeen	Aberdeen–Augustus Town (Loch Ness)–Fort Willam–Glencoe–Glassg ow	Glassgow–Cairnryan–Larne–Giant Causeway	Belfast–Dublin	Dublin–Cliff ofmoher–A dare–Limeri ck	Limerick–Kildare Village–Dublin	Dublin–Guangzhou
	Driving	Distance	Per Day	(km)	0 km	290 km	20 km	120 km	201 km	351 km	394 km	220 km	344 km	227 km	168 km	336 km	336 km	20 km

Table 2. Categories of group tour itineraries to the UK.

Tour operators	Patterns	Group I	Group II	Group III
Tong Cheng Online (TC)	Linear Domestic	Linear Domestic	Linear Domestic	Linear
Beijing Tourism Group (BTG)	Linear International	Linear International	Linear International	
Guang Zhi Lv (GZL)				
Jin Jiang Travel (JJT)				
TuNiu Online (TN)				
China Comfort Travel (CCT)	Anticlockwise circle	Anticlockwise circle	Circle	Circle
Caissa Travel (CT)	Clockwise circle	Clockwise circle		
China International Travel (CIT)				
China Travel Service (CTS)				
China Youth Travel Service (CYT)				
Ctrip				
Shanghai Spring International Travel (SSI)				
Zhong Xin Travel (ZXT)				

Note: Sig. at $p < 0.05$.

equal to the number of features, and:

$$\bar{X} = \frac{\sum_{j=1}^{n} w_j}{n} \tag{2}$$

$$S = \sqrt{\frac{\sum_{j=1}^{n} w_j^2}{n} - (\bar{X})^2} \tag{3}$$

After featuring the distribution of attractions visited, the function of 'point-to-line' was used to create the line features from the discrete points and then the line density tool was employed to map the spatial patterns. The line density tool calculates the density of linear features in the neighbourhood of each output raster cell. Density is calculated in units of length per unit of area. Itineraries are marked with different colours (to represent the connectivity of each individual itinerary) and arrows were marked to show the travel sequence of each itinerary.

Directional Distribution (Standard Deviational Ellipse or 'SDE') analysis was followed. SDE can be used to quantitatively explain the centrality, dispersion, and directionality of the spatial distribution of geographic elements from global and spatial perspectives (ESRI, 2012). The utilization of SDE analysis aims to measure the trend of a set of points or areas by calculating the standard distances separately in the X and Y directions. The elliptic curves formed by two numerical values of standard distances have elements in different quantities due to diverse research purposes and scales. According to the area of the elliptic curve, and the x-axis, the standard distances and rotation angles of the x-axis and the y-axis, the information about research object such as the centre trend, the degree of aggregation, and the direction trend can be observed. Each SDE is a summary of data dispersion of each package tour itinerary.

$$SDEx = \sqrt{\sum_{i=1}^{n} (x_i - \bar{x})^2 / n}, \quad SDEy = \sqrt{\sum_{i=1}^{n} (y_i - \bar{y})^2 / n} \tag{4}$$

where x_i, y_i represents the coordinates of element I; $(\bar{x}, \bar{y})$ represents its average centre, and n represents the number of points.

The angle of rotation (or 'rotation') is calculated as:

$$\tan\theta = \frac{A + B}{C} \tag{5}$$

where:

$$A = \left(\sum_{i=1}^{n} \tilde{x}_i^2 - \sum_{i=1}^{n} \tilde{y}_i^2\right)$$

$$B = \sqrt{\left(\sum_{i=1}^{n} \tilde{x}_i^2 - \sum_{i=1}^{n} \tilde{y}_i^2\right)^2 + 4\left(\sum_{i=1}^{n} \tilde{x}_i \tilde{y}_i\right)^2}$$

$$C = 2\sum_{i=1}^{n} \tilde{x}_i \tilde{y}_i$$

where x_i and y_i are the deviations of the $\tilde{x}_i\tilde{y}_i$ coordinates from the mean centre.

The standard deviations for the *x*-axis and *y*-axis are

$$\sigma_x = \sqrt{\sum_{i=1}^{n} (\overline{x_i}\cos\theta - \overline{y_i}\sin\theta)^2/n}$$

$$\sigma_y = \sqrt{\sum_{i=1}^{n} (\overline{x_i}\sin\theta - \overline{y_i}\cos\theta)^2/n} \quad (6)$$

Building on the algorithm (4) (5) and (6), a total of 13 ellipses were generated based on each package tour itinerary features. The size of the ellipse depends on the number of standard deviations. A standard deviation of 2 was employed to define the boundaries of the ellipses, covering 98% of data to obtain a comprehensive view of the layout of package tour itineraries. Lastly, one-way analysis of variance (ANOVA) was conducted to examine whether a significant difference exists between any categories of package itineraries.

Findings

Spatial patterns and hotspots

Figure 1 demonstrates two general patterns among the 13 package tour itineraries: closed circle and open linear. The closed circle is more popular as marked by thicker line densities. The visited regions cover Southern England, the Midlands, Scotland and Northern England, while in Wales only Cardiff is visited. The circle pattern is closed because both the arrival and departure airports in the UK are the same, whereas the open linear pattern operates from two different airports. It is noted that tour operators only sell one itinerary pattern. There are no themes for different patterns. The arrows in Figure 1 help to mark two further kinds of closed circles: seven clockwise patterns (or from South to North); and one anticlockwise (or from North to South). The clockwise circle pattern starts and departs from London and typically incorporates London-Cambridge-Yorkshire-Edinburgh-Manchester-Cotswolds-Oxford-London. The anticlockwise tour starts and departs from Edinburgh and follows a similar route to the clockwise pattern. The clockwise pattern is more popular and is followed by seven tour operators (CT, CYT, CIT, SSI, ZXT, CTS, and Ctrip), compared with the anticlockwise route, which is followed by only one tour operator (CCT).

The arrows in Figure 1 also break the open linear pattern into two further linear patterns: domestic and linear international patterns, depending on whether Ireland is covered in the itineraries. The linear international pattern starts from London, then along the coastline through England-Scotland-Northern Ireland and further across the border to the Republic of Ireland, departing from Dublin. The linear domestic pattern starts from London and departs from Edinburgh. The linear international pattern is operated by four travel agents (TN, GZL, JJT and BTG) compared with the domestic pattern, which is operated by only one operator (TC). Overall, the linear pattern is less

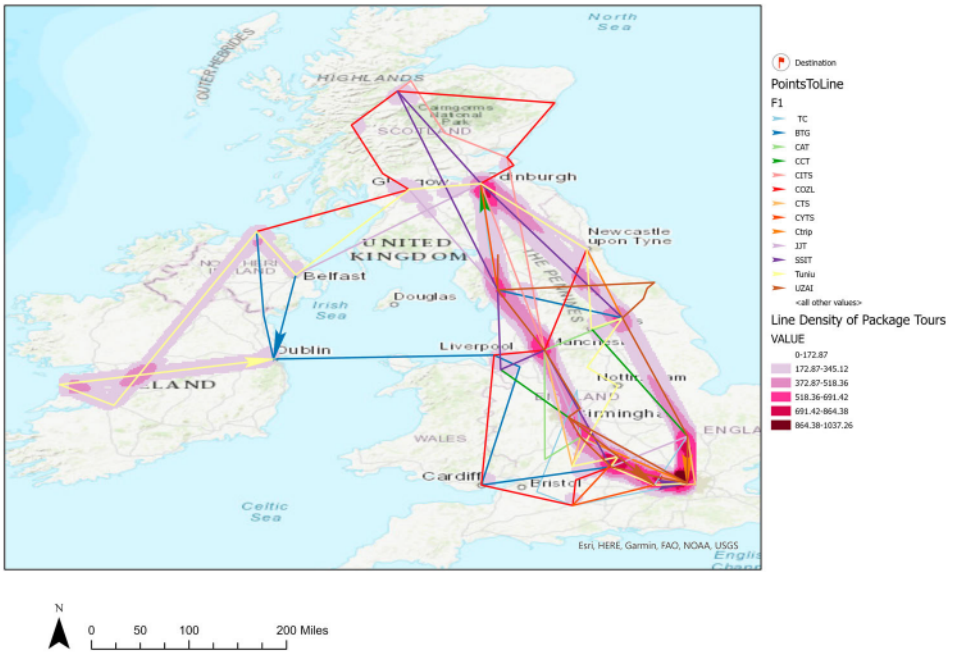

Figure 1. Line density of group tour itineraries to the UK.

popular, operated by five travel operators compared with the circle pattern operated by nine operators.

The line density analysis reveals a strong repetition in the circle across the Northern and Southern areas of the UK, covering London–Windsor–Oxford–Manchester–Windermere–Edinburgh–Newcastle–York–Cambridge–London. London is the highest density city, Windsor, Oxford and Cambridge are the second-highest density locations, Manchester and Edinburgh are among the third-highest density city group, followed by Windermere, Newcastle, and York. This indicates the regional distribution of group tour itineraries and that Windermere, Newcastle, and York are likely to serve as transit and connective cities. The itineraries of closed circular pattern and domestic international pattern roughly overlap on this circle of cities. For the international open linear pattern, itineraries extend to Dublin and Belfast as the major tourist destinations, while Glasgow and Liverpool become the major transit cities.

Hotspot analysis in Figure 2 visualizes the frequency of itineraries in covering each point of interest (POI), which are then categorized as being hot, not significant, or cold. Hot spots are mostly focused on Southeast England and include London, Oxford, Cambridge, Birmingham and the Cotswolds (Stratford-upon-Avon, and Bourton-on-Water). Oxford and Cambridge serve as the major destinations as the Chinese highly value education, believing a Confucius doctrine of 'change of social class through education'. The common feature of the first four cities is that they are all rich in political and cultural history and offer significant sightseeing experiences that satisfy Chinese tourists' curiosity about the UK's international political status and its imperial past, including its world-leading educational institutes, its architecture, its democratic system and its industrial revolution history. These cities' attractions are often clustered within walking distance and offer the opportunity to visit other nearby attractions. The Cotswolds, on the other hand, offer the chance to see the most picturesque English villages that have no equivalent in China. The findings also indicate that tour operators are more aware of Southeast England (especially the London metropolitan areas) compared with northern England. Lesser hotspots include Gloucester, Leeds, York, and the Peak District. The attractions in York are principally the York Minster, the Shambles, City Wall, National Railway Museum, Howard Castle and Betty Tea Room. These hotspots cities and attractions are different

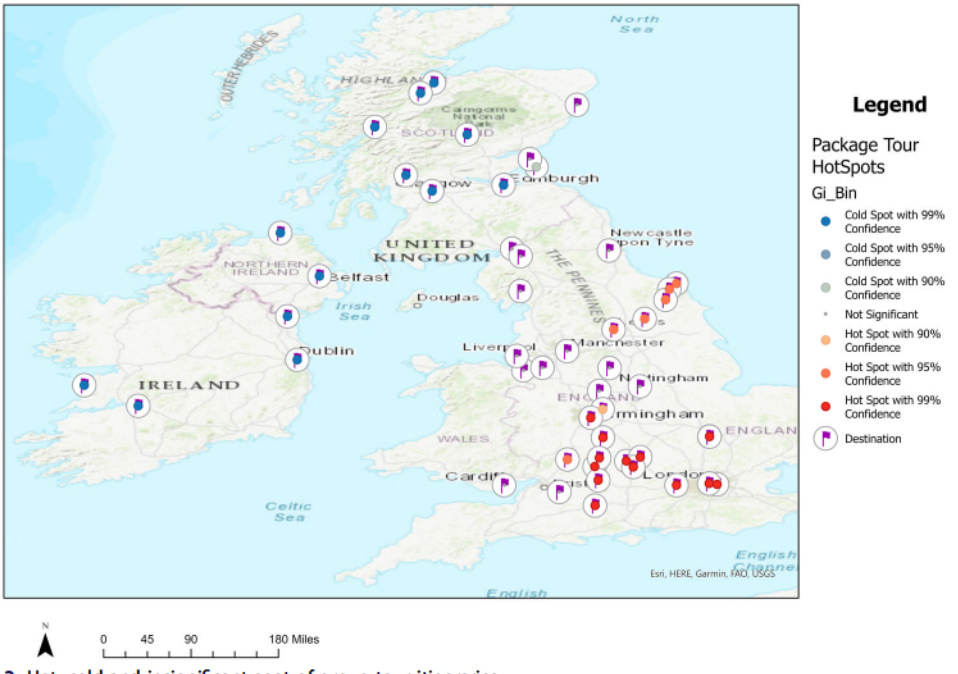

Figure 2. Hot, cold and insignificant spot of group tour itineraries.

from those visited by the UK's other major international markets, such as USA, Germany, France and Italy, which contribute the most tourism income to Scotland (£2.5bn), the Northwest and Wales (£515 m) (VisitBritain, 2021). They are also different from the UK domestic travel market where Manchester, Birmingham, Liverpool are the most popular, in addition to London and Edinburgh (VisitBritain, 2021).

The least significant hotspots are mostly in Wales, the Midlands and Northern England, and include Cardiff, Bath, Liverpool, Manchester, Newcastle, Carlisle, Gretna Green and the Lake District. Although these locations are on the popular circle pattern, fewer attractions are visited and hence the sites are identified as not-significant hotspots. These not-significant spots do offer opportunities to savour British popular culture, such as Old Trafford football stadium and the BBC studios (both in Manchester). They also offer a taste of British history and heritage, such as Stonehenge (Wiltshire), Beamish Museum (Newcastle) and The Roman Baths (Bath); and the natural beauty of the Lake District, and the Scottish Highlands. The duration of stay in these not-significant hotspots is comparatively short, which indicates that these cities act as partial or major transits. The cold spots mainly overlap with the open liner pattern in Figure 1, concentrating in Scotland and Northern Ireland and include Edinburgh, Glasgow, the Highlands, Belfast and Dublin. They showcase the UK's natural beauty and supplement the cultural experience of England with that of the UK's Celtic countries. It is worth noting that one site can serve multiple purposes, e.g. Windermere plays a role for natural tourism and transit purposes. Also worthy of mention is that London and Bicester are the two major shopping destinations, while other cities may also serve shopping purposes.

Given the significance of London as a hotspot, Figure 3 magnifies its visitor attractions. The hotspots around the London metropolitan area include many of the UK's most famous cultural tourism attractions, which appeal to Chinese group tour visitors seeking to experience a collection of western cultural icons. The highest density area includes Buckingham Palace, Westminster Abby, Big Ben, the London Eye and the Houses of Parliament; less popular are the British Museum, London Bridge, No.10 Downing Street, and The Women of World War II. Not popular are St Paul's Cathedral, King's Cross station, the Harry Potter Film Company, Sherlock Holmes Museum, Trafalgar Square, Regent Street, Oxford Street, and Natural History Museum. The high concentration of POIs in

London, especially the high-density POIs of Big Ben, Westminster Abbey, the London Eye, Buckingham Palace, and the British Museum, contributes to the considerable urban congestion of the UK capital. These are all iconic attractions to international tourists, but all have limited public spaces so that the tourist crowds are hard to avoid.

The analysis of the dispersion of the visitation area covered by package tour itineraries is shown in Figure 4. All ellipses are visually concentrated around the UK with an average size of the overlapped area in England of 47.52 km^2. These overlapped areas show a significant intensity of land use and are the homogeneous attractions covered by itineraries. In addition, the larger size of the ellipse indicates a trend of expansion toward northern Britain and into some peripheral areas for some operators, including GZL, JJT, TN and BTG. The GZL ellipse has the largest size with 289.32 km^2 and its itinerary covers Scotland, Northern Ireland and the Republic of Ireland. More importantly, the directional distribution illustrates that the Northwest-Southeast are the most popular patterns, which can be both closed circle itineraries and open line itineraries – some will reach Scotland and Ireland, and some will only focus on the Southeast and middle England. The centres of these ellipses distribute mostly on the mid-to-south part (Southeast UK), which indicates that the Southeast UK is the core of these ellipses (domestic linear and round itineraries). The international linear itineraries demonstrate more horizontal ellipses, and cover destinations widely in the South and the North of the UK and Ireland with scattered POIs.

Significance test of pattern categories

It is important to confirm with statistical solutions whether there exists a statistical difference among the spatial patterns of itineraries across the duration of the trip, the number of stops, driving distance, ellipse shape size, kurtosis and rotation. The duration of the trip and the number of stops reveal the space–time frequency and distributional intensity of these tourist activities. Driving

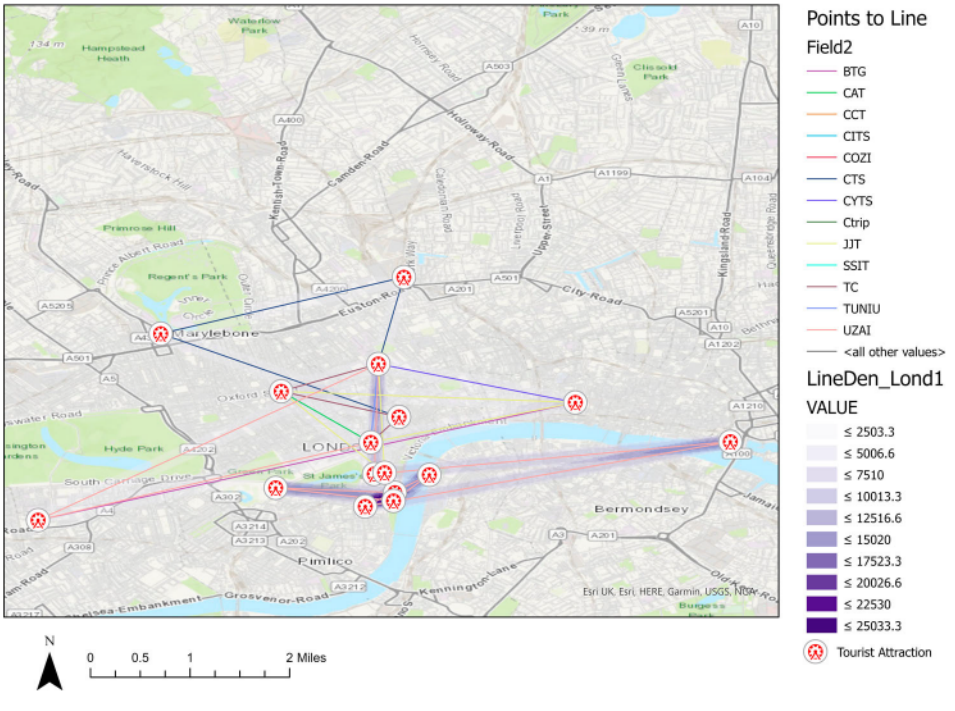

Figure 3. Line density of tour itineraries in London.

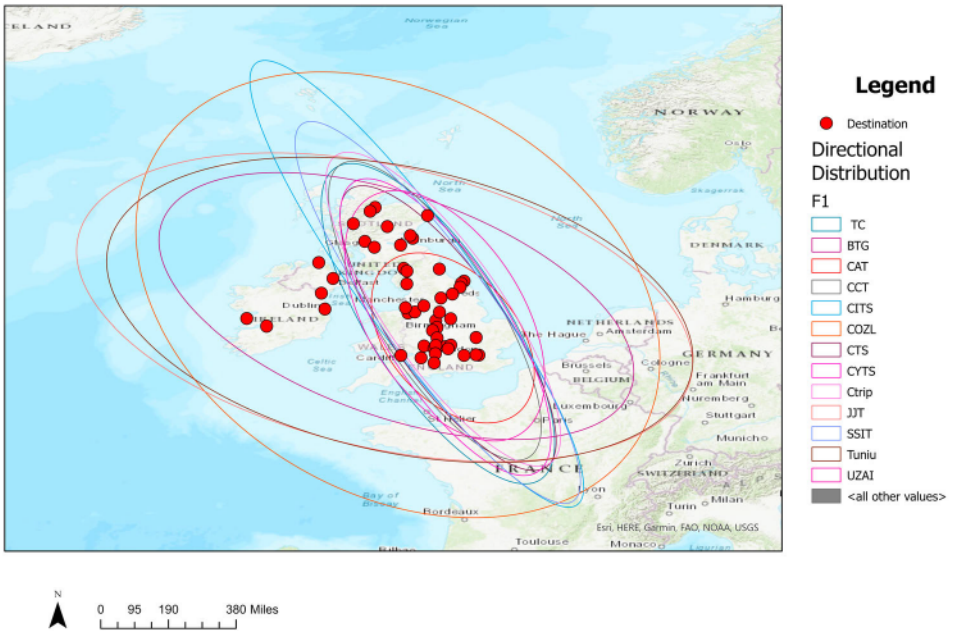

Figure 4. Directional distribution of Chinese package tours in the UK.

distance and ellipse shape size illustrate the spatial usage characteristics of the itineraries. Kurtosis, i.e. the flatness of the ellipse, is one key indicator demonstrating the dispersion of overall tourist activities. Rotation represents the clockwise intersection angle between the X and Y axis, which donates the overall directional distribution of the itineraries. Based on these measurements, the itineraries were classified into three groups, based on the visual observation of the pattern shapes (being round or linear), movement orientation (being from south to north, or north to south) and scope (being domestic or international). As shown in Table 2, Group I is composed of four patterns that are Linear Domestic, Linear International, Round S-N and Round N-S. Group II contains Linear Domestic, Linear International and Round that combines round S-N and N-S. Group III contains the Linear and Round which respectively combines linear domestic and international; linear round S-N and N-S.

As shown in Table 3, there exist statistically significant differences for all groups among durations, driving distance and ellipse as well as kurtosis and rotation (definitions given earlier). However, there does not exist significance at $p < .05$ on number of stops, with group I ($F(3) = 1.734$, $p = 0.229$), Group II ($F(2) = 2.890$, $p = 0.102$) and Group III ($F(1) = 3.107$, $p = 0.106$). This suggests the patterns cover similar destinations or attractions, meaning they bring tourists to similar places, potentially contributing to creating tourist congestion in these places. The ANOVA- test showed that the highest *F*-value was returned by Group II, hence the grouping strategy used to create Group II deemed the most preferable, although significant difference was also reported on the other two grouping strategies. Hence, we focus on reporting the itinerary details in Group II: the total driving distances of these international linear itineraries are longer than others at 2428 km on average compared with 1098 km for linear domestic itineraries and round itineraries. The international linear itineraries also share a longer duration at 13 days and more stops at 18 on average, in comparison with linear domestic itineraries (10 days and 12 stops) and round itineraries (10 days and 14 stops). The activity space size of the international linear itineraries also demonstrates significant larger areas at 224 km^2, four times the size of two other pattern types.

Table 3. Groups of itinerary patterns.

Tour operators		Duration (days)	Number of stops	Driving distance (km)	Ellipse (km^2)	Kurtosis	Rotation
Tong Cheng Online		10	12	1099	799,023	2.79	146.69
Caissa Travel		10	11	1200	402,923	1.57	137.92
China Comfort Travel		10	13	1570	650,687	2.98	147.17
China International Travel		10	17	2043	989,527	4.83	144.01
China Youth Travel Service		10	12	1680	670,381	2.81	147.57
Shanghai Spring International Travel		10	12	2135	803,924	4.30	144.21
Jin Jiang Travel		11	14	2209	2,838,497	0.45	102.93
Zhong Xin Travel		11	17	1705	695,952	1.81	147.31
China Travel Service		12	13	1709	601,147	3.08	144.69
Ctrip		12	9	1429	692,353	3.25	145.01
Beijing Tourism Group		13	15	2218	1,765,667	0.45	109.54
TuNiu Online		13	18	2212	2,720,394	0.48	102.23
Guang Zhi Lv		15	24	3075	3,581,738	0.71	120.40
Mean		11.3	14.4	1867	1,324,016	2.27	133.82
Standard deviation		1.54	3.73	506	1,050,353	1.42	17.34
Group I	*F*-value	3.874	1.734	5.384	18.017	6.193	39.788
	Sig.	0.050	0.229	0.021	0.000	0.014	0.000
Group II	*F*-value	6.088	2.890	8.799	29.994	10.302	64.598
	Sig.	0.019	0.102	0.006	0.000	0.004	0.000
Group III	*F*-value	5.060	3.107	2.960	18.938	11.763	19.051
	Sig.	0.046	0.106	0.113	0.001	0.006	0.001

Discussion and conclusion

Power and spatial dynamisms in overtourism

The present study incorporates an understanding of demand management into the proactive destination management system (Pásková et al., 2021). This contrasts with current proactive measures, which tend to develop measures for tourist attractions and destinations only once tourists are already present. In contrast, the management of demand focuses on the products available at the tourists' home country. As identified in the spatial distribution of the tours in this study, a number of hotspots and concentrated travel cooridors are formed because these products cover similar locations and attractions, sending tourists to the same attractions at the peak season. Consequently, the negative impacts on the host cities can be seen in pedestrian congestion created in London, Oxford and Cambridge, whilst at the same time, some parts of the UK, notably the rural areas of Scotland and Wales, are barely visited. As such, it is not poor 'management' in general that is responsible for overtourism, but the inadequate 'demand' management of the tour operators' package tours. To address overtourism and particularly tourist congestion, it is not enough to put in measures solely at the destination level (e.g. Mihalic, 2020); it is more important to proactively influence the demand at its root and to diversify the tourist products being offered.

Existing studies in this area tend to envisage the problem as a longitudinal one (Cheung & Li, 2019; Sæþórsdóttir et al., 2020a, 2020b), tied into a destination's life cycle and carrying capacity (Butler, 2019). The present study argues that tourist congestion can occur quickly and might be addressed quickly by shifting the focus to the tourist generating country and away from the tourist destination. It can bypass any hypothesized stages of tourism development (Butler, 2019). However, the variation of the actual impacts and intensity of the congestion is subject to specific geophysical conditions and other existing social-cultural-political complexities at a given destination (Pásková et al., 2021). Furthermore, while proactive destination management advocates employing optimum tourism schemes by understanding tourist markets (Pásková et al., 2021), the present study

highlights the importance of differentiating between group tours and individual tourists in the evaluation. As seen in the hotspots and travel corridors created by package tours, group tourists consume more common pool resources (Sæþórsdóttir et al., 2020a, 2020b) and contribute to intensive land use, leaving more concentrated impacts on the local environment. It is hence critical to assess whether the travel mode is a package tour or an individual 'independent' tourist when assessing whether a tourist market is optimum or not (Oklevik et al., 2019).

The spatial patterns of package tour distribution provide insights into tour operators' operating constraints. The two patterns – close circle and open linear – identified in this study depend on the airports used, with the former formed if the arrival and departure airport are the same; the latter if the airports are different. The circular pattern has two ends fixed so it is less flexible. The challenge lies in which attractions are to be included and how to connect them within budgetary and time constraints as well as tourist expectations. Not all cities are classic attractions but are included largely for functional purposes, such as transport connectivity and transit (e.g. Liverpool and Newcastle) or availability of hotel stock with large capacity. On the other hand, the linear patterns are more flexible in terms of meeting time demands but are costlier due to using different airports and possibly different airlines. Overall, the spatial patterns reflect the tour operators' juggling between operating constraints, destinations' geophysical limitations, transport connectivity and profit-making. It endorses that itinerary design, at least in China, is more supplier – and constraints-led than consumer-led, despite industry emphasis on consumer needs and requirements (Morgan, 2014; Scarles, 2004). This study thus highlights how the role of operating constraints is a very significant determinant of tourist spatial patterns and thus congestion.

Furthermore, at the heart of this spatial distribution of tourists is the tour operators' power to define the 'meanings' of destinations and what is worthy of the tourist gaze through their own codes of ideology (Pritchard & Morgan, 2001). If we agree that landscapes' meanings draw on the cultural codes of their societies (Scarles, 2004), the power and influence of tour operators in constructing their meanings is phenominal, particularly for Chinese consumers whose access to independent travel advice is very limited. The study highlights the unique configuration of Chinese packages, which vary significantly from other international markets. For example, US and Australia package tours typically include Scotland, covering more of Glasgow, Edinburgh and the Highlands and, for more experienced travellers, may include the world heritage castles of North Wales (VisitBritain, 2021). For the Chinese market, the focus is very much on the South-east of England, particularly London. As an industrial country that seeks fast economic growth, urban-based attractions are regarded as a more 'valuable' gaze, whilst countryside and natural environments are regarded as backward and unattractive.

This study also sheds light on the product strategy of Chinese tour operators, although future research on this is needed. The statistical test shows that, amid the overlapping package tours, there are similarities in the number of destinations visited but significant differences observed in the days of travel, distances travelled and the space covered. This indicates a level of product variation, but this seems to be established mostly on non-product features, such as by increasing time spent in one location. This product strategy is not surprising because developing brand new products or adding new attractions is costly and often uncertain in securing customer satisfaction. Retaining existing attractions and varying service standards is much more risk free. This choice of strategy may also indicate that the Chinese tour operators may not have adequate knowledge about destinations and are hence reluctant to develop new itineraries. On the positive side, this brings opportunities for international destinations to update their knowledge and influence their product design.

Management implications

Spreading the distribution of inbound tourists more equitably across the nations and the regions of the UK and especially outside of London has long been a major challenge for UK destination

marketers, especially Visit Britain. The research findings discussed here have three important learnings for tourism policymakers in the UK and beyond. First, the study underlines how essential it is to adopt a more balanced tourism strategy at the spatial scale across the UK. The analysis has revealed the 'cold spots', which are the less frequently visited tourist destinations (e.g. Northern England, Wales, Scotland and Ireland) and the non-significant spots (e.g. the Midlands). This endorses the UK International Passenger Survey (IPS) research (2019) and clearly identifies under-developed tourist destinations, with opportunities and potential for package tours, which could mitigate the inbound tourism pressure and congestion in the UK's more well-known cities. UK destination management organizations (DMOs) must look to influence the tour operators to diversify their products away from the well-known destinations and create reasons to visit 'off-the-beaten-path destinations'. This can be done, for example through a range of strategies, including familiarization trips for tour operators and soft diplomacy and PR actions, such as when the UK Prime Minister David Cameron invited the Chinese President Xi Jinping to sample British beer and cuisine near his residence, thereby creating Chinese interest in visiting the area and the pub (Guardian, 2018).

Second, the study highlights that tackling the seasonal peaks of package tourism, as well as its spatial overlaps can potentially address the tourism overcrowding, which poses such challenges to city operations and environmental sustainability. As global tourism expands (despite environmental pressures), addressing seasonality in partnership with tour operators and individual travellers is one way forward. Similarly, the smart management of tourist destination facilities can optimize visitor flows, such as through Helsinki heatmap to virtualize real-time congestion (Wray, 2021), so that group visit bookings are managed at different times of the day, thereby easing congestion. Third, at the city level, effective policies and strategies can be implemented to reduce urban transport congestion and here the data mining of package tours and other forms of datasets can support the identification of the transport congestion caused by tourism itineraries and generate more reasonable travel planning and guidance for urban tourism.

Third and finally, the study challenges all tour operators, not just Chinese, to change a business model, which works for them but is not aiding the liveability and sustainability of the destinations. The nudge for change could be the increased push for sustainable tourism models and tourist satisfaction post-pandemic. Different and off-peak itineraries for package tours will increase the diversity of tours and travellers' experience, mitigating the congestion impact on travellers' satisfaction. The Chinese package tours to the UK are mostly concentrated in the South-east of England during the summer months, and travel routes could offer more options of timings (spring, autumn, winter) and locations. To improve the travellers' intra-urban experience, tour guides and travel agencies could also adopt a more flexible travel planning strategy to avoid transport congestion. Business models, which create congestion and crowded environments will likely be threatened in our COVID-19-adjusted world.

This research has extended understanding of the important role of tour operators and package tours in distributing tourists in the UK and in confirming and accentuating its 'hotspots'. It has investigated group package tours provided by Chinese tour operators to the UK and has provided an analysis of package tour itinerary patterns and offered practical recommendations to reduce congestion and create more sustainable places for residents. A key limitation of the research is its lack of temporal data (such as time spent at each attraction and on transport). They are included in the tour guides' tour schedule but the data was not available to the researchers; with access to temporal data future studies can assess real-time congestion formation. Future research also needs to examine more package tour itineraries beyond Chinese tour operators with more temporal information and operational details. Such studies can also examine actual or dynamic real-time tourists' travel behaviour data through GPS-enabled smart sensors or mobile phone data (Padrón-Ávila & Hernández-Martín, 2020) and undertake detailed analysis of the urban transport congestion created by overtourism. Above all, research needs to assess tour operators' inclination to change their current business models, which are creating unsustainable outcomes and work needs to critically evaluate tour operator-DMO inter-relationships and the potential to engage and deliver sustainable change.

Disclosure statement

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References

Beard, S. (2017). Too many tourists amid Oxford's dreaming spires? Retrieved from https://www.marketplace.org/2017/10/23/too-many-tourists-amid-oxfords-dreaming-spires/, accessed 14 February 2022.

Brown, A., Kappes, J., & Marks, J. (2013). Mitigating theme park crowding with incentives and information on mobile devices. *Journal of Travel Research*, *52*(4), 426–436. https://doi.org/10.1177/0047287512475216

Butler, R. (2019). Tourism carrying capacity research: A perspective article. *Tourism Review*, *75*(1), 207–211. https://doi.org/10.1108/TR-05-2019-0194

Cerezo-Medina, A., Romero-Padilla, Y., García-López, A., Navarro-Jurado, E., Sortino-Barrionuevo, J., & Guevara-Plaza, A. (2021). Comparative analysis of short-term rental homes and traditional accommodation in Andalusian tourist cities: Intensity, density, and potential expansion areas. *Current Issues in Tourism*, 1–16. https://doi.org/10.1080/13683500.2021.1983522

Chen, Y., Mak, B., & Li, Z. (2013). Quality deterioration in package tours: The interplay of asymmetric information and reputation. *Tourism Management*, *38*, 43–54. https://doi.org/10.1016/j.tourman.2013.02.010

Cheung, K. S., & Li, L. H. (2019). Understanding visitor–resident relations in overtourism: Developing resilience for sustainable tourism. *Journal of Sustainable Tourism*, *27*(8), 1197–1216. https://doi.org/10.1080/09669582.2019.1606815

China Tourism Academy. (2019). *Annual report on China outbound tourism development 2019*. Retrieved 16 July 2021. https://dragontrail.com/resources/blog/cta-annual-report-on-china-outbound-tourism-development-2019

Coffey, H. (2021). Malta is paying tourists to visit. *The Independent*. Retrieved 16 July 2021. https://www.independent.co.uk/travel/news-and-advice/malta-pays-tourists-visit-holidays-b1830536.html

Curtin, S., & Busby, G. (1999). Sustainable destination development: The tour operator perspective. *International Journal of Tourism Research*, *1*(2), 135–147. https://doi.org/10.1002/(SICI)1522-1970(199903/04)1:2<135::AID-JTR151>3.0.CO;2-Y

Davies, B., & Downward, P. (2007). Exploring price and non-price decision making in the UK package tour industry: Insights from small-scale travel agents and tour operators. *Tourism Management*, *28*(5), 1236–1261. https://doi.org/10.1016/j.tourman.2006.09.020

Debbage, K. G. (1990). Oligopoly and the resort cycle in the Bahamas. *Annals of Tourism Research*, *17*(4), 513–527. https://doi.org/10.1016/0160-7383(90)90024-L

ESRI. (2012). *ArcGIS desktop and spatial analyst extension: Release 10.1*. Environmental Systems Research Institute.

Evening Standard. (2017). *London tops Chinese tourists' to-do list for UK destinations*. [online] Standard.co.uk. Retrieved 24 January 2022. https://www.standard.co.uk/news/london/london-tops-chinese-tourists-todo-list-of-uk-destinations-and-it-s-down-to-the-royals-and-harry-potter-report-finds-a3609191.html

Ferguson, D. (2018). Cambridge divided over growing number of tourist groups. *The Guardian*. Retrieved 24 January 2022. https://www.theguardian.com/uk-news/2018/oct/13/cambridge-locals-row-numbers-chinese-tourists

Fyall, A., Garrod, B., & Wang, Y. (2012). Destination collaboration: A critical review of theoretical approaches to a multi-dimensional phenomenon. *Journal of Destination Marketing & Management*, *1*(1-2), 10–26. https://doi.org/10.1016/j.jdmm.2012.10.002

GF Securities. (2017). *China outbound tourism market report*. Retrieved 16 July 2022. http://pdf.dfcfw.com/pdf/H3_AP201709200900313407_01.pdf

Gössling, S., McCabe, S., & Chen, N. C. (2020). A socio-psychological conceptualisation of overtourism. *Annals of Tourism Research*, *84*, 102976. https://doi.org/10.1016/j.annals.2020.102976

Grinberger, A. Y., & Shoval, N. (2019). Spatiotemporal contingencies in tourists' intradiurnal mobility patterns. *Journal of Travel Research*, *58*(3), 512–530. https://doi.org/10.1177/0047287518757372

Guardian. (2018). Yorkshire Chippy's Mandarian Menu proves popular with Chinese tourists. Retrieved 16 July 2022. https://www.theguardian.com/uk-news/2018/aug/23/yorkshire-chippys-mandarin-menu-proves-popular-with-chinese-tourists

Ji, M., Zhao, Y., Wang, J., & Huang, X. (2021). Consuming the mundane and extraordinary: Hospitality facilities and transport in the spatiotemporal behaviour of theme park visitors. *Asia Pacific Journal of Tourism Research*, *26*(9), 953–972. https://doi.org/10.1080/10941665.2021.1925318

Jin, X. C., & Sparks, B. (2017). Barriers to offering special interest tour products to the Chinese outbound group market. *Tourism Management*, *59*, 205–215. https://doi.org/10.1016/j.tourman.2016.08.007

Jørgensen, M. T., Law, R., & King, B. E. (2018). Beyond the stereotypes: Opportunities in China inbound tourism for second-tier European destinations. *International Journal of Tourism Research*, *20*(4), 488–497. https://doi.org/10.1002/jtr.2198

Lew, A., & McKercher, B. (2006). Modeling tourist movements: A local destination analysis. *Annals of Tourism Research*, *33*(2), 403–423. https://doi.org/10.1016/j.annals.2005.12.002

Lue, C.-C., Crompton, J. L., & Fesenmaier, D. R. (1993). Conceptualization of multi-destination pleasure trips. *Annals of Tourism Research*, *20*(2), 289–301. https://doi.org/10.1016/0160-7383(93)90056-9

Lumby, T., & Pengelly, E. (2018). Cambridge slashing tour group sizes to tackle 'problem' visitors. *CambridgeshireLive*. Retrieved 16 July 2021. https://www.cambridge-news.co.uk/news/cambridge-news/cambridge-tourists-group-council-city-15260940

Mckercher, B., & Lau, G. (2008). Movement patterns of tourists within a destination. *Tourism Geographies*, *10*(3), 355–374.

McKercher, B., Shoval, N., Ng, E., & Birenboim, A. (2012). First and repeat visitor behaviour: GPS tracking and GIS analysis in Hong Kong. *Tourism Geographies*, *14*(1), 147–161. https://doi.org/10.1080/14616688.2011.598542

Mihalic, T. (2020). Concpetualising overtourism: A sustainability approach. *Annals of Tourism Research*, *84*(2020 09 01), 103025. https://doi.org/10.1016/j.annals.2020.103025

Morgan, N. (2014). Problematizing place promotion and commodification. In A. A. Lew, C. Michael Hall, & A. M. Williams (Eds.), *The Wiley Blackwell companion to tourism* (pp. 210–219). John Wiley & Sons.

Oklevik, O., Gössling, S., Hall, C., Steen Jacobsen, J., Grøtte, I., & McCabe, S. (2019). Overtourism, optimisation, and destination performance indicators: A case study of activities in Fjord Norway. *Journal of Sustainable Tourism*, *27*(12), 1804–1824. https://doi.org/10.1080/09669582.2018.1533020

Oppermann, M. (1995). A model of travel itineraries. *Journal of Travel Research*, *33*(4), 57–61. https://doi.org/10.1177/004728759503300409

Padrón-Ávila, H., & Hernández-Martín, R. (2020). How can researchers track tourists? A bibliometric content analysis of tourist tracking techniques. *European Journal of Tourism Research*, *26*(2020), 1–30.

Pásková, M., Wall, G., Zejda, D., & Zelenka, J. (2021). Tourism carrying capacity reconceptualization: Modelling and management of destinations. *Journal of Destination Marketing & Management*, *21*, 100638. https://doi.org/10.1016/j.jdmm.2021.100638

Paulino, I., Lozano, S., & Prats, L. (2021). Identifying tourism destinations from tourists' travel patterns. *Journal of Destination Marketing & Management*, *19*, 100508. https://doi.org/10.1016/j.jdmm.2020.100508

Peeters, P., Gössling, S., Klijs, J., Milano, C., Novelli, M., Dijkmans, C., Eijgelaar, E., Hartman, S., Heslinga, J., Isaac, R., Mitas, O., Moretti, S., Nawijn, J., Papp, B., & Postma, A. (2018). Research for TRAN committee – Overtourism: impact and possible policy responses. Retrieved 25 January 2022. https://researchdata.brighton.ac.uk/id/eprint/149/1/IPOL_STU%282018%29629184_EN.pdf

Pritchard, A., & Morgan, N. J. (2001). Culture, identity and tourism representation: Marketing Cymru or Wales? *Tourism Management*, *22*(2), 167–179. https://doi.org/10.1016/S0261-5177(00)00047-9

Sæþórsdóttir, A. D., & Hall, C. M. (2020). Visitor satisfaction in wilderness in times of overtourism: A longitudinal study. *Journal of Sustainable Tourism*, *29*(1), 123–141. https://doi.org/10.1080/09669582.2020.1817050

Sæþórsdóttir, A., Hall, C. M., & Wendt, M. (2020a). From boiling to frozen? The rise and fall of international tourism to Iceland in the era of overtourism. *Environments*, *7*(8), 59. https://doi.org/10.3390/environments7080059

Sæþórsdóttir, A. D., Hall, C. M., & Wendt, M. (2020b). Overtourism in Iceland: Fantasy or reality? *Sustainability*, *12*(18), 7375. https://doi.org/10.3390/su12187375

Scarles, C. (2004). Mediating landscapes: The process and practices of image construction in tourist brouchures of Scotland. *Tourist Studies*, *4*(1), 43–67. https://doi.org/10.1177/1468797604053078

Siu, P. (2019). Hong Kong residents fed up with influx of mainland Chinese tourists call on government to stop them visiting more than once a month. *South China Morning Post*. Retrieved 16 July 2021. https://www.scmp.com/news/hong-kong/hong-kong-economy/article/2181895/hong-kong-residents-fed-influx-chinese-tourists

Tapper, R. (2001). Tourism and socio-economic development: UK tour operators' business approaches in the context of the new international agenda. *International Journal of Tourism Research*, *3*(5), 351–366. https://doi.org/10.1002/jtr.348

UNWTO. (2004). *Tourism congestion management at natural and cultural sites*. Retrieved 16 July 2021. https://www.e-unwto.org/doi/book/10.18111/9789284407637

UNWTO. (2018). *Overtourism? Understading and managing urban tourism growth beyond perceptions*.

VisitBritain. (2021). *Market and trade profile China*. Retrieved 16 July 2021. https://www.visitbritain.org/sites/default/files/vb-corporate/markets/visitbritain_marketprofile_china_2019_0.pdf

Wong, C., & Kwong, W. (2004). Outbound tourists' selection criteria for choosing all-inclusive package tours. *Tourism Management*, *25*(5), 581–592. https://doi.org/10.1016/j.tourman.2003.06.002

World Tourism Organization (WTO). (2004). *Tourism congestion management at natural and cultural sites*. Madrid, Spain: WTO.

Wray, S. (2021). Helsinki launches real-time crowding heatmap. *Cities Today*. Retrtieved 25 January 2022. https://cities-today.com/helsinki-launches-real-time-crowding-heatmap/

WTTC. (2021). *Global economic impact and trends, 2020*. Retrieved 16 July 2021. https://wttc.org/Portals/0/Documents/Reports/2021/Global%20Economic%20Impact%20and%20Trends%202021.pdf?ver=2021-07-01-114957-177
Zhang, G., Song, R., & Liu, D. (2011). *Green book of China's tourism*. COTRI.
Zhong, L., Sun, S., & Law, R. (2019). Movement patterns of tourists. *Tourism Management*, *75*, 318–322. https://doi.org/10.1016/j.tourman.2019.05.015