



Spatiotemporal behaviour of the urban multi-attraction tourist: does distance travelled from country of origin make a difference?

O comportamento espaciotemporal do turista urbano multiatração: a distância do país de origem faz diferença?

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Abstract

The way tourists move in space and time is part of their travel experience while at the same time moulding it. In the urban context, tourists usually include multiple attractions on their intra-destination itineraries. Understanding tourists' spatiotemporal behaviour may help improve the quality of their experience as well as provide useful information to the management of attractions and destination. Nevertheless, tourists' spatiotemporal behaviour is a complex phenomenon, influenced by numerous factors related to both destination and tourists. Distance travelled from country of origin has been empirically found as one of these factors influencing tourist spatiotemporal behaviour. Visitors from more distant residential locations invest more time and money in their trip; therefore, variety/multiple benefit seeking, risk and uncertainty reduction and economic rationalization may impact their time-space activity. However, there has been no research examining the impact of distance travelled from country of origin specifically on tourist spatiotemporal behaviour in an urban setting. This article fills this gap both theoretically and empirically, through a dual analysis of a time-space GPS tracking study and a survey, conducted among tourists (n=413) staying at 10 different hotels in Lisbon. Hypothesis testing allowed the identification of statistically significant differences between long-haulers and short-haulers in their spatiotemporal behaviour when visiting this urban destination.

Keywords: Intra-destination spatiotemporal behaviour, multi-attraction travel experience, urban tourism, distance travelled from country of origin.

Resumo

O modo como os turistas se movem no espaço e no tempo faz parte e, ao mesmo tempo, molda a sua experiência de viagem. No contexto urbano, os turistas costumam incluir várias atrações nos seus itinerários intradestino. A compreensão do comportamento espaciotemporal dos turistas pode ajudar a melhorar a qualidade da sua experiência, bem como fornecer informações úteis para a gestão de atrações e destinos. No entanto, o comportamento espaciotemporal dos turistas é um fenómeno complexo, influenciado por inúmeros fatores relativos quer ao destino, quer aos próprios turistas. A distância percorrida do país de origem até ao destino foi empiricamente identificada como um desses fatores que influenciam o comportamento espaciotemporal do turista. Os visitantes originários de locais de residência mais distantes investem mais tempo e dinheiro na sua viagem; portanto, a busca de variedade e de múltiplos benefícios, a redução do risco e de incerteza e a racionalização económica pode impactar a sua atividade espaço-tempo. No entanto, nenhuma pesquisa examinou antes especificamente o impacto da distância percorrida a partir do país de origem sobre o comportamento espaciotemporal do turista em contexto urbano. Este artigo preenche esta lacuna teórica e empírica, por meio de uma dupla análise de rastreamento GPS e de um inquérito junto de turistas (n = 413) alojados em dez diferentes hotéis em Lisboa. Os testes de hipóteses permitiram identificar diferenças estatisticamente significativas entre os turistas que viajaram de curta distância e os turistas de longa distância quanto ao seu comportamento espaciotemporal na visita a este destino urbano.

Palavras-chave: Comportamento espaciotemporal intradestino, experiência de visita multiatração, turismo urbano, distância percorrida desde o país de origem.

1. Introduction

The vast majority of models in tourism and recreation are based on the assumption that tourists travel to a single destination, although many multi-destination travel studies in the fields of geography and tourism have demonstrated, with growing evidence, precisely the opposite (Rodríguez & Abdul-Jalbar, 2012; Yang, Fik, & Zhang, 2013). In the intra-destination urban context, 'multi-attraction travel', a concept coined by Hunt & Crompton (2008), is arguably even more frequent. Because of their recognized multi-functionality and attractive diversity, urban destinations have indeed been seducing more and more tourists with multiple motivations and interests (Buhalis, 2000; Edwards, Griffin, & Hayllar, 2008). It is exactly that multiplicity of attractions that make urban destinations the stage par excellence of multi-attraction travel experience: "the multifunctional city serves the multi-motivated user"

(Ashworth & Tunbridge, 2000, p. 52), who, in turn, tends to include several attractions in his visit itinerary (Rey-Moreno, 2014).

Tourist experiences can be interpreted chronologically from their movement through space and time whereby tourists move from one destination to another during a particular time interval (Tussyadiah & Fesenmaier, 2007; Xia, Ciesielski, & Arrowsmith, 2005). As tourist experience has an inescapable spatiotemporal dimension (Aho, 2001; Gnoth, 2003; Li, 2000), urban destinations must accurately understand, facilitate and, to a certain extent, manage tourists' time-space activity so as to deliver positive experiences (Edwards & Griffin, 2013).

While the relevance of studying the way tourists move through time and space is well established, it must be acknowledged, however, that this is a complex phenomenon (Edwards & Griffin, 2013; Leung, Wang, Wu, Bai, Stahura &



Xie, 2012; Xia, Zeepongsekul, & Packer, 2011). Tourists' spatiotemporal behaviour is influenced by numerous factors related both to destination and tourists (Lew & McKercher, 2006; Tideswell & Faulkner, 1999; Xia & Arrowsmith, 2008; Zillinger, 2007). It is inherently difficult to trace in its overt manifestations and patterns (Edwards, Dickson, Griffin, & Hayllar, 2010; Shoval & Isaacson, 2007) as well as in its subjective decision making process (Chang, 2012; Hall, 2012). Analysing tourists' movements – "where, how, and at what pace and time" tourists "move from one attraction to the next" (Xia et al., 2011, p. 844) – is critical to understanding tourist behaviour, which provides fundamental information to the entire set of destination planning and management actions (McKercher & Lau, 2008). In fact, tourists' spatiotemporal behaviour has important implications at both the destination and enterprise level. In the intra-destination context, understanding how tourists behave, and the factors that influence their movements is useful for infrastructure and transport development, product development, destination planning, and the planning of new attractions, as well as management of the social, environmental, and cultural impacts of tourism (Lew & McKercher, 2006).

A range of factors has been empirically identified as being relevant to the variations observed in tourists' spatiotemporal behaviour (Koo, Wu, & Dwyer, 2012; Lau & McKercher, 2006; Tideswell & Faulkner, 1999; Xia, Evans, Spilisbury, Ciesielski & Arrowsmith, 2010; Xiao-Ting & Bi-Hu, 2012). This paper explores how distance travelled from country of origin influenced Lisbon tourists' time-space behaviour.

2. Literature review

2.1 Tourists' spatiotemporal behaviour

Tourist movement patterns represent the sequence of movements by tourists from one attraction site to another (Xia et al., 2010). People's movement in space is overt behaviour resulting from a cognitive process of spatial decision making (Lloyd, 1997; Tussyadiah & Zach, 2012). Tourists' spatial-temporal behaviour can be studied from a number of different perspectives: Tourism, Geography, Economics, Mathematics, Computer Sciences and Psychology (Xia et al., 2011); as well as approaches: spatially explicit, individual-based, mathematical and economic and spatial cognitive models (Xia, 2007). Time geography, introduced by Hägerstrand, presents a conceptual framework to describe and understand the temporal dimension of tourist behaviour (Grinberger, Shoval, & McKercher, 2014).

The development of new digital information technologies made possible the development of advanced tracking methods (Grinberger et al., 2014), such as GPS, which proved very efficient in dealing with the shortcomings of "traditional" tracking techniques (Shoval & Isaacson, 2007). Combining a GPS tracking study alongside a survey is becoming popular to collect more accurate data (Zakrisson & Zillinger, 2012) and has been used in recent empirical research (Edwards & Griffin, 2013; McKercher, Shoval, Ng, & Birenboim, 2012; Xia et al., 2010).

Following Tussyadiah & Fesenmaier (2007), tourist movement can be seen as a dynamic process which is characterized by space-time references and attributable components (i.e., the nature of the place visited). Specifically in the urban context, though the study of intra-destination movement of tourists is limited (Lau & McKercher, 2006), some research projects with advanced tracking technologies have been published revealing tourist spatial and temporal consumption of cities (Espelt & Benito, 2006; Leung et al., 2012; McKercher & Lau, 2008; Modsching, Kramer, Gretzel, & Hagen, 2006).

On the one hand, mobility constitutes indeed an important part both of the tourism system and the tourist experience, eventually even being its centre or goal (Haldrup, 2004; Zakrisson & Zillinger, 2012). On the other hand, "creating memorable experiences is the essence and the *raison d'être* of the hospitality industry" (Pizam, 2010, p. 343). The concept of 'tourist experience' is a central issue in tourism research but very little attention has been given to how tourists actually use cities (Ashworth & Page, 2011). In cities, multi-attraction travel is the common pattern. The inclusion of several attractions in the urban itinerary visit responds presumably to the same objectives that are at the origin of multi-destination trip: multiple-benefit seeking, heterogeneity of preferences, risk/uncertainty reduction, economic rationalism, type of travel arrangements, travel mobility, travel time constraints, destination familiarity (Tideswell & Faulkner, 1999) and variety seeking (Zillinger, 2005).

2.2 Factors influencing tourist's spatiotemporal behaviour

In tourism, movements do not occur purely randomly in space (Zillinger, 2007). On the one hand, there are individual factors related to the tourist and the travel context, leading to certain behaviour patterns. On the other hand, as environmental perception is a two-way process between the observer and the observed (Lynch, 2009), tourists' encounters with spaces, while subjective in nature, are contextualized by the geographic features of the destination, influencing how tourists move. Tourist mobility in space and time is then influenced by both internal factors and external factors (Zillinger, 2007) or, in other words, conditioned by both tourist characteristics – e.g., time budgets; motivations, interests and composition; destination knowledge and emotional value; and destination characteristics – e.g., accommodation locations, attraction locations, transportation accessibility (Lew & McKercher, 2006).

Specifically in urban destinations, several studies uncovered differences among various groups of tourists. Keul & Kühberger (1997) tracked Salzburg pedestrian tourists, concluding that spatial behaviour in defined areas is prescribed more by local geography and group conformity than by individualism, underlying destination features. On the other hand, other empirical urban tourist behaviour research stressed tourist characteristics. Dejbakhsh, Arrowsmith, & Jackson (2011) observed variations in distance travelled, means of transport, duration and pattern of movement resulting from different cultural backgrounds of international tourists' movements in Melbourne. Shoval &



Raveh (2004) observed foreign visitors' behaviour in Jerusalem and Tel Aviv, finding that repeat or long-stay tourists visit more distant and peripheral attractions. Shoval, McKercher, Ng, & Birenboim (2011) confirmed the impact of accommodation location on space-time activity of tourists through GPS in Hong Kong. McKercher et al. (2012) studied the effect of familiarity with the destination, via questionnaire survey and GPS tracking study, having registered numerous differences between first-time and repeat international visitors to Hong Kong.

Among these individual factors that affect spatiotemporal tourist behaviour, the distance travelled from country of origin is a significant factor of influence on tourist behaviour and its spatial manifestation (Koo et al., 2012). The relationship between distance and tourism has long been recognized in the tourism literature, although, in recent years, it seems to have been largely ignored (McKercher, 2008).

Short-haul tourists and long-haul tourists are fundamentally different (McKercher, 2008). In the context of multi-destination trips, differences relating to nationality were found (Becken, Wilson, Forer, & Simmons, 2008; Tideswell, 2004). Visitors from further afield tend to visit more destinations and attractions, probably to reduce risk and uncertainty (Tideswell & Faulkner, 1999), and consider quality and product features and are less concerned about price (Lo & Lam, 2005; and Song & Wong, 2003, both studies cited by McKercher, 2008). Long-haul travel is usually viewed as a rare, often once-in-a-lifetime occurrence (Yeoman & Lederer, 2005); short-haul travel, by extension, is more common and associated with risk aversion (Lue, Crompton, & Fesenmaier, 1993) and more escapist or recreation-oriented motives (McKercher, 2008).

In the intra-destination urban contexts, and as for spatiotemporal behaviour analysis, McKercher (2008) incorporated 'activities undertaken' and 'places visited' among other variables when examining the effect of distance on Hong Kong international pleasure visitors, and identified statistically significant differences. However, based on the literature review, there is no study that analyses the relationship between the distance travelled from country of origin and tourists' spatiotemporal behaviour in its double dimension (movements and attractions/activities) specifically in urban destinations.

Tourist markets can be defined by a number of dualities: first versus repeat visitors; business versus pleasure tourists; domestic versus international tourists; etc. (McKercher et al., 2012). This paper focuses on the short-haul/long-haul visitor duality, studying the spatiotemporal behaviour characteristics of the two tourist groups identified.

Based on the preceding discussion, tourists' spatiotemporal behaviour should be analysed in its 'movement' and 'multi-attraction' dimensions. As for the movement dimension of tourist spatiotemporal behaviour, the following indicators were selected: distance travelled during a day's journey (Espelt & Benito, 2006; Keul & Kühberger, 1997), itinerary geometry (Lew & McKercher, 2006; McKercher & Lau, 2008), means of transport (Fennell, 1996; Zakrisson &

Zillinger, 2012) and percentage of time in motion (Keul & Kühberger, 1997). The multi-attraction dimension of tourist spatiotemporal behaviour took the following variables as indicators: attractions visited (Espelt & Benito, 2006; Leung et al., 2012), activities performed (Leung et al., 2012; McKercher et al., 2012), number of attractions/activities (Espelt & Benito, 2006; Hunt & Crompton, 2008) and duration of visit (Espelt & Benito, 2006; McKercher et al., 2012). Thus, the influence of the distance travelled from country of origin on tourist behaviour will be studied regarding the following propositions:

P1: Short-haul and long-haul visitors differ in their intra-destination movement patterns.

P2: Short-haul and long-haul visitors differ in their intra-destination multi-attraction visit patterns.

The methodology for testing these propositions is described in the next section.

3. Methodology

The empirical research compared and contrasted the behaviour patterns of short-haul and long-haul urban visitors to Lisbon via GPS tracking. Data was gathered from tourists staying in 10 different hotels located in the three main district areas of the city between July and September 2012. Potential participants were approached in the hotel lobby after breakfast or when leaving the hotel to visit the destination by the researcher and asked to take part in the study. Once they agreed to participate, tourists were given an activated GPS sports watch, following procedures suggested by Edwards et al. (2010), and asked to return it in the hotel at the end of the day's journey. The device recorded time, speed, distance, position and direction. To build a broader picture, the GPS tracking was complemented by a post-visit interviewer-completed questionnaire survey. The target population were leisure tourists in Lisbon. The selection of subjects was made using a cluster sampling approach, defined in time and in place (Kastenholtz, 2004). The spatiotemporal data was analysed using the online software Garmin Connect and Google Earth. The accuracy of the data collected was ascertained taking into account both the tracking and the survey information.

4. Comparing short-haul and long-haul tourists

4.1 Lisbon as tourist destination

Lisbon is the capital of Portugal, and in recent years has been awarded with numerous international prizes as a tourist destination. The Lisbon region is probably the only region in Europe packing so much variety and choice for tourists into such a small geographical area (WTTC, 2007). Portugal's best-known urban tourism destination, Lisbon is the second most important tourism region after the Algarve in terms of tourist overnight volume and one of Europe's leading conference and city breaks destinations (WTTC, 2007). The Lisbon region surpassed for the first time the ten-million hotel overnight stay mark, reaching 10.067 million, in 2013, which represents total revenues of EUR 587 million (Turismo de Portugal, 2014). The city hit other records in 2013: the Port of Lisbon reached its largest contingent ever in terms of cruise passengers, a total of



558,040 (Porto de Lisboa, 2014); Lisbon airport also had the greatest number ever in passengers, above 16 million passengers (ANA - Aeroportos de Portugal, 2014).

4.2 Data collection and analysis

A total of 413 tourists agreed to participate in the study. The sample considered for analysis included 319 short-haul and 93 long-haul visitors. Participants were asked to participate at any one of the days of their stay in Lisbon to allow variations within this variable. However, the distribution of the day of participation of the two main groups (short-haul and long-haul visitors) is very similar since most were tracked on an intermediate day of their stay in Lisbon (89% for short-haulers; 84% for long-haulers).

The majority of short-haulers (57%) as well as long-haulers (53%) were female. Long-haul visitors tended to be older (with a mean age of 48 years while the short-haul mean age was 40), have a superior education level (89% hold a university degree against 76% of short-haul visitors) and a shorter average length of stay (3.7 nights versus short-haul average of 5.2 nights). The long-hauls were mostly from Brazil (46%), United States (28%) and Canada (11%); among short-haulers, the most numerous came from Spain (31%), the United Kingdom (12%), Germany (12%), the Netherlands (9%), Italy (9%) and France (8%). The majority of the short-haulers (75%), as well as long-haulers (69%), were first-time visitors to Lisbon. Most long-haulers (56%) visited the destination with two or more companions whereas the majority of short-haulers' travel groups included just one more member (63%), but just a minority in both groups (12% for short-haulers; 24% for long-haulers) participated in an organized tour on the survey day.

A series of chi-square tests were carried out to assess the nature of any differences between short-haul and long-haul visitors. There were no significant differences between the two samples in terms of gender ($\chi^2 = 0.730$; $p = 0.393$),

previous visit frequency ($\chi^2 = 0.244$; $p = 1.359$) and day of visit ($\chi^2 = 9.345$; $p = 0.009$). There were, however, significant differences between short-haul and long-haul visitors in terms of their age ($\chi^2 = 33.687$; $p < 0.001$), education level ($\chi^2 = 18.187$; $p < 0.001$), length of stay ($\chi^2 = 15.418$, $p < 0.001$), group travel size ($\chi^2 = 10.011$; $p = 0.002$) and tour group participation ($\chi^2 = 8.731$; $p = 0.003$). These differences, visible in the above mentioned descriptive results, are in line with the results reported by McKercher (2008), confirming that short-haul tourists and long-haul tourists are implicitly different.

5. Discussion

To understand whether there were differences between short-haul and long-haul visitors' spatiotemporal behaviour, Independent Sample t-Test, Chi-square and Mann-Whitney U tests, with a 0.05 significance level, were carried out (Table 1). Only two statistically significant relationships were identified regarding tourists' movements. Long-haul tourists used commercial/touristic transport far more frequently than short-haulers (21% of long haul tourists versus 11% of short-haul tourists). Long-haulers also registered a higher percentage of time in motion during the journey (Mdn = 44.03% of the total duration of the visit) than short-haulers (Mdn = 37.22). As far as spatiotemporal multi-attraction behaviour is concerned, tourists from more distant countries visited urban/historic city districts far more frequently (62% of long-haul tourists against 50% of short-haul tourists) and visited a café/patisserie more often (19% of long-haul tourists versus 7% of short-haulers). In terms of activities, long-haulers opted more frequently for an organized tour during the day journeys (20% of long-haul tourists versus 10% of short-haulers) and shopping (55% of long-haul tourists against 43% of short-haul tourists). Finally, long-haulers included more attractions and activities in their day journeys (Mdn = 8) than short-haulers (Mdn = 7). There were no significant differences among the remaining indicators.

Table 1 – Comparison of tourist spatiotemporal behaviour indicators between short-haul and long-haul visitors

	Short-haulers n=319		Long-haulers n=93		Type of test	Test value	p-value
	count	% ^a	count	% ^a			
Distance travelled	n= 309	196.52	n=92	216.06	Mann-Whitney U	U=12828.5	.156
Itinerary geometry							
point-to-point pattern	n=70	22.5%	n= 20	21.7%	Chi-square	X ² = .172	.918
circular pattern	n=55	17.7%	n= 18	19.6%			
complex pattern	n=186	59.8%	n= 54	58.7%			
Transport							
walking	n=308	96.9%	n=87	96.7%	Chi-square	X ² = .001	1.000
own or rented car	n=31	9.7%	n= 12	13.3%	Chi-square	X ² = .956	.328
public transport	n=242	76.1%	n=63	70%	Chi-square	X ² =1.383	.240
commercial / touristic	n=35	11.0%	n= 19	21.1%	Chi-square	X ² =6.237	.013*
Time in motion	n=308	192.79	n= 92	226.32	Mann-Whitney U	U=11792.50	.015*
Attractions visited							
urban/historical district	n=158	49.7%	n= 58	62.4%	Chi-square	X ² =4.640	.031*
patisserie/café	n=22	6.9%	n= 18	19.4%	Chi-square	X ² =16.668	.000***
Activities performed							
organized tour	n=33	10.4%	n= 19	20.4%	Chi-square	X ² =6.580	.010**
shopping	n=136	42.8%	n= 51	54.8%	Chi-square	X ² =4.228	.040*
Number of attractions/activities	n=318	197.38	n= 93	235.49	Mann-Whitney U	U=12044.5	.006**
Visit duration	n=311	8.01	n= 92	8.31	t-test	t= .954	.341

Notes: *** significant at $p < .001$ ** significant at $p = .01$ * significant at $p = .05$.^a Except in the cases of the Mann-Whitney U tests (mean ranks) and Independent Sample t-Test (mean). Only attractions and activities where significant differences exist among the two groups are considered in the table.

Source: Authors.



Indeed, the distance of visitors' country of origin can influence their spatiotemporal behaviour, due to a higher perceived need of reducing risk and uncertainty (Koo et al., 2012), which may lead to higher participation of long-haulers in an organized tour and corresponding increased use of commercial/touristic transport. The comparatively greater time spent by this group in motion as well as the larger number of attractions/activities included in their day journeys confirms in the intra-destination context previous empirical evidence that visitors from more distant countries tend to visit more destinations and attractions (Tideswell & Faulkner, 1999), making the most of the reduced time spent at the destination and considering the smaller likelihood of coming back (Yeoman & Lederer, 2005). On the other hand, knowing that long-haulers differentiate by preferring urban/historical districts and patisseries/café as attractions and organized tours and shopping as activities is useful to design city packages and experiences adapted to their desires and expectations. In line with Lau & McKercher (2008), the specificity of attractions and activities was found useful to differentiate diverse tourists' spatiotemporal behaviour patterns, while linearity (geometric form) of itineraries did not reveal any significant differences.

5. Conclusions

This research examined short-haul and long-haul tourists' spatiotemporal behaviour. The results provide strong support for the propositions of the study that short-haul and long-haul visitors differed in their time-space behaviour patterns.

The study adopted an innovative approach in analysing tourists' spatiotemporal behaviour in its two dimensions (movements and attractions/activities). No previous research had fully examined the impact of distance travelled from country of origin on tourist spatiotemporal behaviour, considering its global scope, in the urban intra-destination context. The most important work comparing short and long-haul urban tourists' behaviour was presented by McKercher (2008), but it neglected these movement patterns.

The approach followed was to study the effect of distance travelled from the destination perspective. Distance dynamics represent the cumulative effects of time availability, costs, risk, cultural distance, motive, and other factors and exert a profound, though often unrecognized, impact on consumer behaviour, which is crucial for tourist marketing (McKercher, 2008). Understanding the needs of travellers and responding properly to these needs is a prerequisite for management success (Ekinci, 2004). This insight into short- and long-haul needs and preferences in terms of attractions and activities may help destinations and tourist agents to design and deliver more appealing experiences that meet the expectations and desires of these two market segments, with better targeted product offerings, marketing activities and provision of experiences (McKercher et al., 2012).

Independent Sample t-Test, Chi-square and Mann-Whitney U tests indicated significant differences between

short-haul and long-haul visitors' spatiotemporal behaviour. Hypothesis testing revealed more significant differences regarding the multi-attraction than the movement dimension. Interestingly, distance travelled from country of origin does not seem to influence much the temporal or spatial length of intra-destination day visit but rather what the two groups do during their stay. Long-haulers reveal to be more active, seeking more things to see and do and opting more often for organized tours and particular attractions and activities. This information is particularly valuable, for instance, for the design of adjusted city tour offerings for these two segments.

Generating satisfactory shopping experiences especially directed at long-haulers seems to make urban destinations particularly attractive, eventually developing *shoptainment* (Kozinets, 2002) tour products. These additionally permit the enhancement of the economic impact of tourism in the destination and may further prolong the destination experience after the trip through memorabilia (Aho, 2001), particularly if products purchased are distinctive of the destination.

Some limitations must be acknowledged. The study monitored the movements of individuals during one day of their visit to Lisbon and not over their entire stay, due to pragmatic reasons relating to the battery life of the GPS device and also to ensure that it was recovered during the trip, but aggregation of individual day trips to understand collective tourist movements (other than during arrival and departure days) is appropriate (McKercher & Lau, 2008; McKercher et al., 2012). On the other hand, the literature suggests that other variables may be important – for example, tourists' personal characteristics or group dynamics – that were not examined in this study. Equally, the findings presented are both provisional and partial, but despite this are *prima facie* evidence of significant differences between origin distance groupings regarding urban destinations.

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