Chapter 2

Tourist Flows and Spatial Behavior

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Tourism involves the movement of people through time and space, either between their home and destinations, or within destination areas. Understanding tourist movements and the factors influencing the time/space relationships that tourists have with destinations has profound implications for policy, infrastructure, transport, and product development, as well as the management of tourism's impacts (Edwards and Griffin, 2013). Early research focused on interdestination travel patterns and relied largely on paper-based data-collection tools such as surveys, trip diaries, and small-scale maps. The emphasis has shifted recently to studies of tourist movements within destination areas, aided by passive, electronic data-collection tools, such as Global Positioning System (GPS) tracking devices, cell phones, and personal digital assistant (or PDA) instruments. Technology now permits more sophisticated analysis including network analysis, time budget allocation, and market segmentation based on different observed behavioral patterns. Noam Shoval discusses the impact of emerging technologies in detail in Chapter 20 in this volume.

This chapter examines tourism flows and spatial behavior. It begins with a review of pioneering research conducted in the 1990s that examined interdestination movements. An overview of intradestination movements follows before concluding with a discussion of moderating factors that can affect spatial behavior.

Modeling Interdestination Tourist Movements

The study of movements between the tourist's home and destination or between destination areas dominated research conducted in the 1990s. This research established the field of study and identified dominant themes that are still prevalent today. The following section reviews briefly key works that laid the foundation for this study area.

The Wiley Blackwell Companion to Tourism, First Edition.
Edited by Alan A. Lew, C. Michael Hall, and Allan M. Williams.

Mings and McHugh (1992) identified four types of touring route taken by domestic American tourists who visited Yellowstone National Park. Three involved automobile travel exclusively, while the fourth involved a combination of air and automobile transport. Respondents who displayed a "direct route" itinerary took the most direct path to and from Yellowstone National Park and followed exactly the same route in both directions. The "partial orbit" itinerary consisted of taking the most direct route to a large destination area, such as the Rocky Mountains, then embarking on a touring loop in the area. The return trip followed the original outward-bound transit route. These types of itinerary are typified by a significant transit journey followed by an extensive tour visiting the key attractions and staying in different destinations in an area some distance from home. By contrast, the "full orbit" tour itinerary involves visiting a number of destinations with no overlap in the tour route. The "fly-drive" itinerary is similar to the partial orbit itinerary except that the transit leg is made by air.

Lue et al. (1993) focused their research on multidestination trips, but also recognized the existence of single-destination, direct-route trips. Four itinerary types were described. Tourists make a number of short stops on their way to or from the main destination in the "en-route" model. The "base camp" model represents a further elaboration of the single-destination model. Conceptually, it resembles a hub-and-spoke pattern. Tourists base themselves in one main destination and then venture out from that destination in a series of short, day tours to nearby attractions and destinations. In the "regional tour," tourists travel to a destination region, but rather than basing themselves in one locale they stop overnight in a number of places in a sequential pattern before returning home. The "trip-changing" pattern involves a multifocus, touring trip visiting a number of destinations without overlapping any leg of the trip.

Oppermann (1995), focusing on international travel, identified seven possible itinerary types. In addition to the five previously mentioned by Mings and McHugh (1992) and Lue et al. (1993), he added two other itineraries that are relevant to long-haul air travel. The "open jaw loop" model applies to tourists who enter a country through one gateway and leave through another. In between, they embark on a linear tour connecting the two gateways. For example, a European visiting the USA may arrive in New York, travel overland to San Francisco and then return home from there. The "multiple destination areas loop" itinerary model is the most complex, for it recognizes some tourists will visit many countries and tour extensively through these different destinations. The person may engage in different travel patterns at any given stop. Thus, it may be possible for someone on an extended trip to participate in any or all of the single-destination stopover, base camp tours, full tours, or open jaw itineraries.

Finally, Flognfeldt (1999) identified four modes of recreation and vacation travel. The "resort trip" (direct travel, single destination), "base holiday," and "round trip" are similar to other itinerary models discussed previously. In addition, he identifies "recreational day trips" from the individual's home community as a fourth travel type. While technically not a tourism trip because no overnight stay is involved, day trips must certainly be considered when examining the full of range of touring options.

These studies identified 26 different itinerary types, but closer inspection reveals the distinction between them is rather forced and arbitrary. Mode of transport, distance, and domestic versus international travel delineate different models, when the overall patterns described are largely similar. Indeed, as Figure 2.1 illustrates, the 26 models proposed can be classified into four broad themes. The simplest itinerary type involves a single destination,

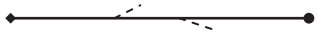
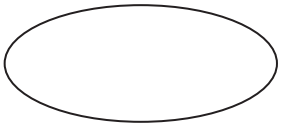
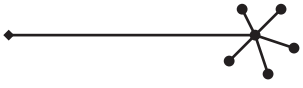
Itinerary type	References
 Single-destination, with or without side trips	Lue et al. (1993), 2 forms Mings and McHugh (1992) Oppermann (1995), 2 forms Flognfeldt (1999) Lew and McKercher (2002)
 Transit leg and circle tour at a destination (transport modes may vary)	Mings and McHugh (1992), 2 forms Lue et al. (1993) Oppermann (1995) Lew and McKercher (2002), 2 forms
 Circle tour with or without multiple access, egress points; different itinerary styles possible at different destination areas (transport mode may vary)	Mings and McHugh (1992) Lue et al. (1993) Oppermann (1995), 3 forms Flognfeldt (1999) Lew and McKercher (2002), 2 forms
 Hub-and-spoke style (from home community or destination area)	Lue et al. (1993) Oppermann (1995) Flognfeldt (1999), 2 forms Lew and McKercher (2002)

Figure 2.1. Itinerary types.

there-and-back trip that may or may not include side trips. A second type involves a transit leg to the destination area, followed by a circle tour, stopping overnight at different places. A third type involves a circle tour with or without multiple access and egress points. Lastly, hub-and-spoke itineraries may be evident where tourists base themselves in a destination area and take side trips to other destinations.

This research illustrates that tourist movement patterns involve both a transit and a destination touring component. The different types are shown in Figure 2.2. The various tour combinations identified result from different mixing and matching of transit and touring elements. An outbound and inbound transit leg following the same route is implied in the single-destination, base camp, stopover/en-route, and the regional tour/partial orbit or destination area loop models. Multiple transit legs are needed for the various loop tours identified. In rare instances, tourists may embark on a single transit leg and then have an extended return tour home.

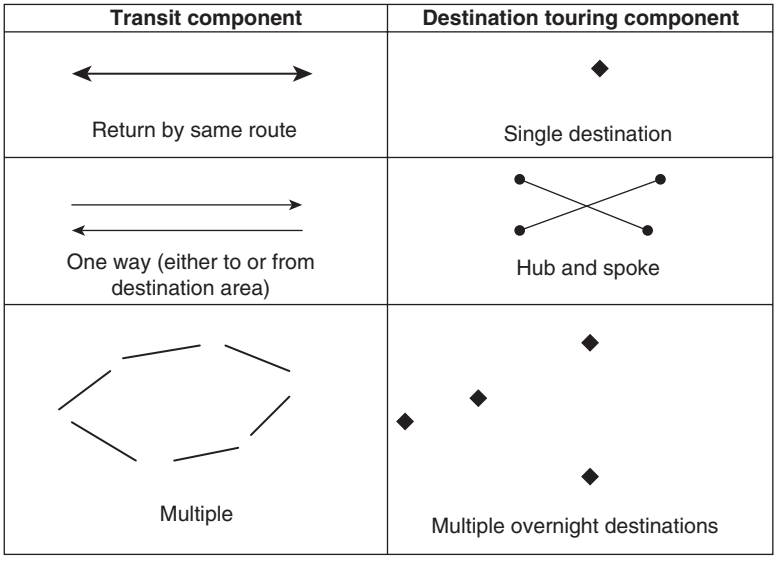


Figure 2.2. Different transit and destination touring components of itineraries.

Modeling Intradestination Movements

The examination of intradestination movements is much younger area of study, due to three factors that did not affect interdestination studies. The first issue relates to fineness of data. Unlike interdestination studies where the destination represents the unit of analysis, intradestination studies require a level of precision in the order of meters or tens of meters. This first issue leads directly to the second issue, that of the reliability of the tourist as researcher. Fineness of detail depends on how meticulous tourists are in reporting their movements, which, experience shows, is rarely finer than the level of attraction node (McKercher and Lau, 2008). The emergence of passive electronic tracking devices have resolved both issues as precise movements can be tracked without any need for tourists to record their activities.

A lack of theoretical framework represented the third limiting factor. While interdestination movement studies can inform intradestination research, the spatial organization of destinations adds a layer of complexity that limits their utility. Traditional urban transport models are also of limited value for they are predicated on the assumption that the majority of people have perfect knowledge of the road system and will take the shortest or otherwise most-efficient route possible: something that cannot be assumed for tourists who may be unaware of their destination's geography, but who want to explore it widely (Lew and McKercher, 2006).

A framework to analyze tourist movements based on the geomorphology of the destination, the spatial location of attractions and accommodation nodes, transport routes, mode and accessibility, tourist time budgets, tourist motivation, and destination knowledge sought to address this issue (Lew and McKercher, 2006). The model suggests movements are influenced by both a territorial (Figure 2.3) and path (Figure 2.4) dimension. Territoriality relates to the distance traveled from the accommodation locus. The path dimension builds on inter-

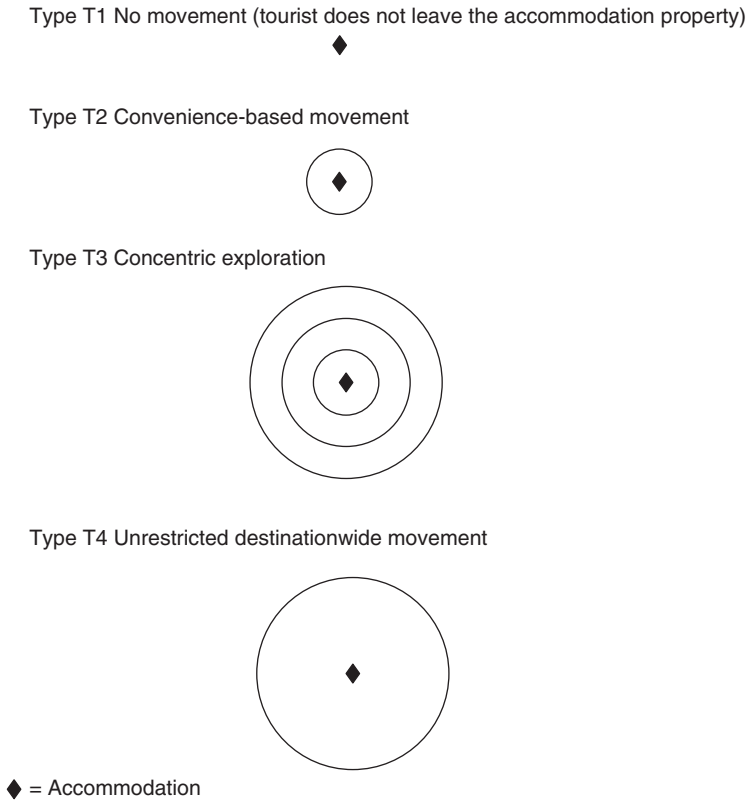


Figure 2.3. Territoriality of intradestination movements.
Source: Lew and McKercher (2006).

destination studies and suggests tourists could exhibit one of seven types of movement patterns from a simple point-to-point pattern to a complex, rather random pattern. Empirical testing of this framework supported the validity of a territoriality dimension, but questioned the linearity dimension (McKercher and Lau, 2008). Instead, intensity and to a lesser degree specificity appear to influence spatial patterns more than linearity. Intensity relates to the number of stops made during the day and specificity refers to whether tourists tend to confine their movements to a specific node or wander widely throughout the destination.

Studies using network analysis support this latter finding by showing the strength of the relationship between individual attractions, attraction nodes, and paths followed. These studies reveal that while movements of individual tourists may be stochastic, there is an underlying order to them. Orellana et al. (2012), for example, noted that while many places are visited often they are hardly visited in the same order. Zheng et al. (2011) and Li et al. (2011), analyzing GPS-tagged photos, were able to identify sets of attraction nodes and the broad paths linking them. Leung et al. (2012), using a similar method, identified the cornerstone or icon attractions that formed the foundation for these networks, while Xia et al. (2011) demonstrated that this type of analysis can predict the probability of visiting other attractions within a network. In doing so, Edwards and Griffin (2013) have used network analysis to identify self-guided touring routes of varying durations to help visitors maximize

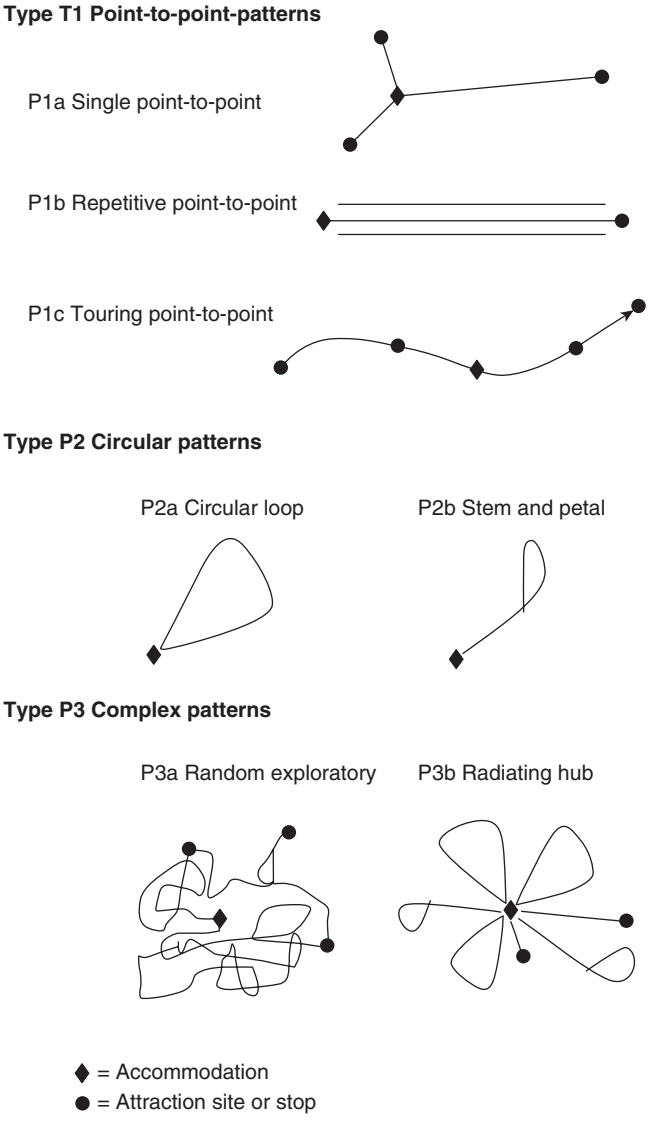


Figure 2.4. Linearity of intradestination movements.
Source: Lew and McKercher (2006).

limited time budgets and increase expenditure. Both Edwards and Griffin (2013) and Xia et al. (2011) illustrate how this knowledge can be used to develop appropriate management strategies to minimize or mitigate congestion.

Interestingly, Zillinger (2007) raised the idea of being able to identify a rhythm that is noticeable in tourist mobility over time and space. Rhythmic movements are defined by a combination of mobility and stationariness. She found that mobility and stationariness alternate in a rhythmic and occurring way but within each day of the journey and over the entire holiday. Travel rhythms are highly individual, influenced by the tourist's own interests, past visitation history, and the spatial organization of that destination.

Intradestination studies also highlight the hitherto unrecognized impact that the stage of visit and hotel location have on movements. Movements are heavily restricted during arrival and departure days, whereas they are more unfettered during middle days of a visit (McKercher and Lau, 2008; Shoval et al., 2011). The tourist's effective unrestricted timed budget is, in reality, shortened by 2 days, limiting how widely they can explore the destination area. For example, a 3-day, 2-night stay produces only one full day where tourists can be expected to travel widely. This finding also explains why tourists on limited time budgets often preplan their itinerary prior to the visit and are reluctant to change once in the destination (Shoval and Raveh, 2004). In a similar manner, hotel location has been discovered to exert a pronounced effect on movements, influencing when certain places are likely to be visited during the day, sequence of visitation, and probability of visiting lower-order attractions (Shoval et al., 2011).

Intervening Factors

A series of intervening factors can affect tourist movements. This last section discusses the impact that distance decay and its cousin market access, and time, trip, and personal characteristics, have on movements.

Distance Decay and Market Access

Tobler (1970) identified distance decay as the First Law of Geography, noting that "everything is related to everything else, but near things are more related than distant things." Distance decay states that demand for activities varies inversely with the distance traveled or with increased time, money, or effort required to reach a place. The associated concept of market access builds on this idea, but argues that the number of intervening opportunities offering similar experiences affects the rate of decay (Pearce, 1989). Thus, while in aggregate tourist flows will decline with distance, the pattern will vary depending on the product type. For example, residents of the subtropical city of Brisbane, Australia, have the choice of literally dozens of beaches within a 150 km radius of the city, but must travel more than 2000 km to access Australia's nearest downhill ski resort, Falls Creek. As a result, a beach located 100 km away may be deemed to have poor market access, while a ski resort located 2000 km away might enjoy strong market access. Distance decay has been studied empirically in various tourism settings since the late 1970s (Greer and Wall, 1979) and found to be broadly applicable. Much less research has been conducted on market access (McKercher, 1998b), representing a significant gap in the literature.

Three broad types of decay curves have been identified (McKercher and Lew, 2003). The standard curve shows how demand peaks at some distance close to the tourists' home and then declines exponentially. The shape of the curve recognizes that tourists must travel a certain distance before they feel sufficiently removed from their home environment to make the journey worthwhile (Greer and Wall, 1979). Alternately, demand can plateau for some distance before declining, as a result of a finite number of destination options and accommodation supply along a linear touring route (McKercher, 1998a). Here, market access influences the shape of the curve. The third type has a secondary peak some distance away from the source market, in recognition of the fact that some distant destinations may have such great market appeal that their pulling power supersedes the normal frictional effect of distance.

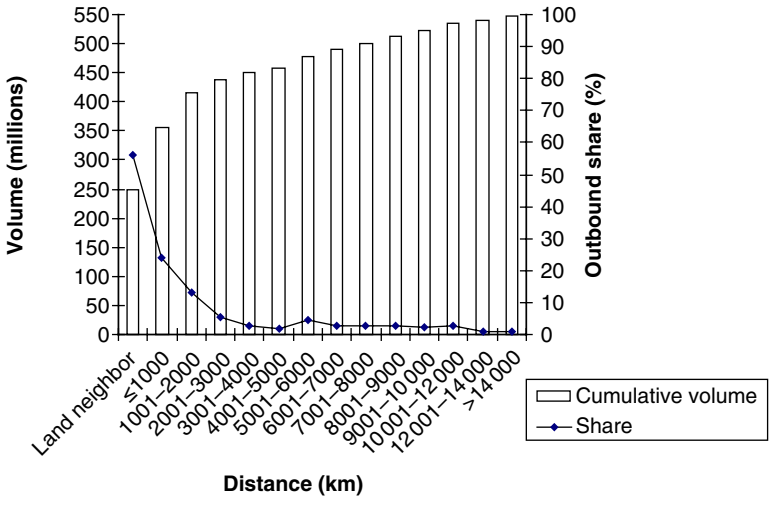


Figure 2.5. Cumulative volume of arrivals.
Source: McKercher et al. (2006).

A global study evaluating 41 source markets and 146 destinations confirmed the ubiquity of the impact of distance on demand (McKercher et al., 2006) (Figure 2.5). This study concluded that 80% of all international travel occurs to destinations located within 1000 km of a source market's boarders. Global tourism demand declines sharply thereafter, with mean demand per destination declining by two-thirds with every additional 1000 km traveled. Moreover, decay curve patterns from 39 of the 41 source markets adhered to the one of the three distance decay models.

The origin of the decay curve for island economies was shifted, but otherwise one of the three patterns was observed. Japan and Australia represented the only exceptions, where multiple decay curves were noted. Outbound tourism from Japan displayed two distinct short-haul and long-haul distance decay patterns, while three distinct peaks were noted among Australians, coinciding with travel to the South Pacific (peaking in New Zealand), Southeast Asia (peaking in Singapore), and Europe. Interestingly, a similar decay pattern has also been observed within destinations (Shoval et al., 2011), where tourists are likely to spend up to 40% of their total daily time budget within close proximity of the hotels. Remote attractions are unlikely to be visited, unless they have attained the status of icon sites that help brand the destination.

Market access has been found to influence the type of visitor attracted to different destinations (McKercher, 1998b). Areas with strong market access do not necessarily attract more visitors or more visitor nights, but they do attract short-break vacationers, through travelers, and international tourists seeking a short escape from gateway cities. Destinations with poor market access tend to attract repeat visitors and those who stay for long periods. Families traveling with children seek places with strong market access for short-break vacations. On the other hand, families who have more time to travel seek destinations with poor market access. Couples with no children choose to vacation at destinations with modest market access, bypassing the most proximate destinations.

Two other relationships between distance and tourist flows are worthy of discussion. First, an effective tourism exclusion zone (ETEZ) has been observed in much outbound travel

(McKercher and Lew, 2003). The ETEZ represents a geographic zone where little or no tourism activity occurs that is relevant to the market under consideration. The size and proximity of the zone to the market can distort the rate of demand decay. An ETEZ close to the source market essentially shifts the demand curve outward. A similar zone a moderate distance from the source market accentuates the demand peak leading up to its inner edge, and can produce a secondary demand peak beyond its outer edge. This pattern exists for both inter- and intradestination travel. More importantly, the zone represents a psychological threshold that distinguishes long- from short-haul travel. Trips taken prior to encountering the ETEZ are typically short-break, short-duration, single-destination trips. Those that occur beyond its outer edge tend to be longer-duration, multiple-destination, touring-oriented trips.

Second, distance exerts a significant filtering effect on the type of person willing or able to travel, which in turn affects behavior and consumption patterns within destinations. Essentially, anyone who can travel can travel short distances, but the extra time, cost, effort, and willingness to enter culturally dissimilar environments tends to act as a "filter" that effectively excludes certain segments (McKercher, 2008, 2009). As a result, short-haul visitors tend to be younger, have lower levels of education, lower incomes, and have less travel experience. Families, young couples, and groups of friends are more common. They travel for escape, fun, and relaxation and seek activities that satisfy those needs. Conversely, the long-haul tourist tends to be older, more affluent, and more experienced. They are unlikely to be traveling with children. They are likely to be traveling for aspirational and self-development reasons and will choose activities that reflect those goals.

Time and Financial Budgets

Time is one of the few absolutes tourists face when they travel. Vacation times are usually fixed, with little opportunity to extend holidays. However, tourists do have control over how they choose to spend their time budgets, and this depends on whether they value time as a scarce resource to be rationed or as commodity that can be spent in many places. It is for this reason that McKean et al. (1995) argue that time rationing may be the most important factor in the travel-cost equation. Those who adopt a resource valuation see travel time as something that cannot be saved, stored, or accumulated for future use. They tend to view transit time as a cost, where time spent traveling must be traded-off for a shorter stay at a destination (Truong and Henscher, 1985). They can be considered as outcome-oriented individuals who seek to maximize time spent at the end point by minimizing transit times. An alternative school of thought argues that the transit component has a positive commodity value in itself (Chaves et al., 1989; Walsh et al., 1990). These people can be described as process-oriented tourists, where the journey can be as important as the goal. Touring, sightseeing, and making multiple stops are important to them. People with limited time budgets tend to adopt a more resource-oriented approach to travel and want to get to the destination or attraction as quickly as possible. Those with larger time budgets tend to adopt more of a commodity-oriented approach and will engage in touring, sightseeing, and exploration.

Money also plays a role, but it is more subtle. It can effectively "buy" time or distance, enabling people willing to spend more to travel further or do more things within a finite time frame. For example, a self-drive tourist can likely travel 300 km or less in 4 hours, limiting the choice of destinations. Yet, a flying time of 4 hours enables the tourist to travel 3000 km or more. Conversely, someone wishing to drive 3000 km may have to invest 5–6 days for each transit leg, meaning only those people with large time budgets can afford to do so.

Money can thus buy time, in the sense that it can shorten transit times or, for the same amount of time, it can buy distance, opening up a much wider array of destination opportunities for the tourist.

Trip and Personal Characteristics

Length of stay influences both multidestination travel and the number of activities tourists can pursue within a destination area (Oppermann, 1997). Substantial differences have also been noted in the movements of first-time and repast visitors (Fakeye and Crompton, 1991), with a recent study using Geographic Information System (GIS) analysis revealing differences in the amount of time spent at attractions, the times of day when attractions were likely to be visited, and in overall daily movement patterns, where first-time visitors are more likely to make one long extended trip from the hotel, while repeaters tend to make a number of short forays, returning to the hotel intermittently during the day (McKercher et al., 2012). The role of the place visited as a main or stopover destination also affects behavior (McKercher, 2001), due in part to the length of stay and also in part to the psychological investment made in the destination. Furthermore, trip purpose may also have an effect on the spatial distribution of tourists (Fennel, 1996). Pleasure travelers are far more likely to explore a destination than business travelers. People visiting friends and relatives tend to do less, while spending more time with family. When they travel, they may go to areas not predominantly identified as tourism nodes. Special-interest tourists will tend to confine their actions to activities that relate to the specialized reason for visiting, while the generalist sightseeing tourist will tend to travel more widely with no clearly evident pattern (Zakrisson and Zillinger, 2012).

Finally, in terms of travel party composition, Thornton et al. (1997) for example noted significant differences in both participation rates in certain activities and allocations of daily time budgets between families and adult-only groups. Flognfeldt (1999) and others note the role of cultural distance as a factor influencing attraction selection, whereas Smallwood et al. (2012) have observed substantial differences between domestic and international tourists.

Conclusion

An intricate relationship exists between time, space, and tourism movements. Over the years a variety of models have been developed to portray the movement of tourists from their homes to destination areas or between destination areas. These models recognize that tourism movement involves two components: a destination component and a transit component, which may or may not be integrated into the destination component. Movement of tourists is, in turn, moderated by a number of factors, including the frictional effect of distance on demand, the number of intervening opportunities available, tourists' total time budget and how they choose to spend that time, and trip variables.

The discipline of geography has played a central role in the evolution of tourism as a field of study. The desire to understand the spatial interactions of tourists with a destination and the movement of tourists between destinations has played a critical role in developing the phenomenon of tourism. The geography of tourism seems to have become relatively less important over the last 20 years, however, as other disciplines have discovered tourism. Yet, an appreciation of spatial relationships forms one of the foundations of tourism by which any study, regardless of discipline, is based. Many exciting research opportunities exist to

build on the existing knowledge base or to reexamine other tourism concepts from a temporal/spatial perspective.

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