



Considering Tobler's first law of geography in a tourism context



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HIGHLIGHTS

- Significant difference in visitor's travel distance existed among the destinations.
- Visitors also differed in their perceived emotional solidarity with residents.
- An inverse relationship between travel distance and emotional solidarity was found.
- A compelling argument in support of Tobler's law within a tourism context is made.

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ABSTRACT

Despite potential benefits from applying Tobler's law in a tourism context, the law has been used sparingly within the tourism literature. This study seeks to expand the use of Tobler's law in tourism research by examining the relationship between tourists' distance travelled to a destination and the perceived degree of emotional closeness such visitors have with community residents. In doing so, visitor data from three uniquely distinct Texas destinations were analyzed. Results suggest that visitors to the destinations not only differed in their average travel distances, but also the perceived levels of emotional solidarity with residents. Results supported Tobler's law in a tourism context, whereby results indicated that the further an individual travelled to a destination, the less they agreed with feeling close to destination residents. Implications and future research direction opportunities are offered at the close of the work.

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1. Introduction

Although details may vary, it is generally agreed that tourism entails the movement of individuals from one locale to another. Some definitions have specified the physical or the temporal dimensions by mandating that at least 50 miles be travelled by visitors or that they be gone from their normal place of residence for at least 24 h (Mill & Morrison, 1985), while the United Nations

(U.N.) (2010) presents a vaguer notion of the concept, indicating tourism is travel that occurs to a destination outside one's usual place of residence. Regardless of the divergence, the academic consensus has been that the notion of tourism requires a geographical backdrop, and this makes distance—whether physical or perceived—a vital component in defining and understanding the concept.

Given such intimate linkage between tourism and geography, it makes logical sense to apply geographical frameworks in the study of tourism. Considered the only law of geography, Tobler's first law of geography has been well-received for its practical and illustrative power (Sui, 2004). The law, in a rather simple manner, suggests that distance influences the relationship between two phenomena; it assumes that things are related to one another, but distance

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between them dictates the strength of the relationship, with phenomena or objects located in close physical proximity to one another being more related than those phenomena or objects located geographically further apart (Tobler, 1970).

Although the idea may sound obvious, the law has been shown to be effective in explaining a wide variety of social (Besley & Case, 1995; Chen & Rodden, 2009; Dorigo & Tobler, 1983) and natural (Bjorholm, Svenning, Skov, & Balslev, 2008; Poulin, 2003) phenomena. Considering a more complex system, tourism provides an ideal context by which to verify the legitimacy of Tobler's law. The benefits of embracing the law, should it yield significant relationships among tourism measures, include the potential to aid in the explanation of complex events (e.g., the perceived relationship between residents of and visitors to particular destinations) pertaining to both demand and supply aspects of the tourism system.

Despite such anticipated benefits and its inherent association with geography, tourism researchers have considered Tobler's law sparingly. Few scholars (Ahn & McKercher, 2015; Ho & McKercher, 2014; McKercher, 2008; Mechinda, Serirat, & Gulid, 2009; Zhang, Xu, & Zhuang, 2011) have considered the law within a tourism context, focused exclusively from a demand-side approach. Considering Tobler's law with aspects of supply and demand not only provides great potential in explaining tourism phenomena in a general sense, but also the relationship that exists between destination tourists and residents, in more specific terms. Therefore, the main purpose of this paper is to examine the relationship between tourists' distance travelled to a destination and the perceived degree of emotional closeness such visitors possess with residents living there.

2. Literature review

2.1. Tobler's first law of geography

Despite cited shortcomings (see Barnes, 2004; Miller, 2004; Smith, 2004), some scholars (Eldridge & Jones, 1991; Goodchild, 2008) consider Tobler's first law of geography to be crucial in understanding spatial interaction and patterns. Tobler (1970) is credited with claiming that, "Everything is related to everything else, but near things are more related than distant things" (p. 236). While acknowledging that a more complex model may provide greater explanatory power, Tobler (1970) was concerned that it would potentially make a model increasingly more complex and rigid in return for little additional explanatory power. With much resemblance to the logic of Occam's razor (i.e., entities are not to be multiplied beyond necessity), Tobler put forth his idea with a balanced consideration between universality and efficiency.

The law drew much attention from fellow geographers throughout the 1970s and 1980s, even prompting a special session on it held during the Association of American Geographers meeting in 2003. While some scholars questioned the existential possibility of a universal law in social sciences (Barnes, 2004; Smith, 2004), others offered criticism citing the inherent vagueness of the law (Miller, 2004). Responding to the doubts and criticism, Tobler (2004) defended his law by drawing on comparisons with other proposed and existing laws in economics (e.g., Pareto's law of income distribution, Say's law of market), sociology (e.g., Scheler's law of three phases), and psychology (e.g., Thorndike's law of effect) as he explained how ambiguity makes the law more comprehensive in the world of increasing complexity.

Despite doubts and criticism raised against the law, many scholars have found the law useful in explaining phenomena

concerning physical, psychological, and even temporal distance. Miller (2004) recognized how it emphasized the importance of geospatial components in social science and helped develop techniques for spatial analysis and geographic information system (GIS). Similarly acknowledging the illuminating role of the law, Sui (2004) described Tobler's first law as "a searchlight in geographers' exploration," providing clues for potentially significant relationships, while Goodchild (2004) envisaged possible extensions of the law with GIS advancements.

Outside of geography, Tobler's law has been frequently used by social scientists, as well as natural scientists and engineers. In political science, the law has been proven useful in explaining shared political preference of voters living in proximity (Chen & Rodden, 2009; Rodden, 2010). Also, in public policy, the law inspired Seldadyo, Elhorst, and De Haan (2010) to find that neighboring countries tend to show a similar degree of competency in governance. Such geographical similarity was also reported in national government tax policy within the U.S. (Besley & Case, 1995; Case, Rosen, & Hines, 1993) and Belgium (Heyndels & Vuchelen, 1998). Tobler's law also extends outside of social sciences, garnering support for its applicability in explaining species richness and species composition of American palm tree communities (Bjorholm et al., 2008) and how Wikipedia articles contributed from closer proximity are more likely to be related to each other than ones from a distance (Hecht & Moxley, 2009).

In tourism, scholars have frequently applied distance decay model, a similar concept to Tobler's law, in studying how tourism demand relates to actual or perceived distance from an origin to a destination. Studies have commonly reported exponentially declining demand as distance increases both in domestic (Paul & Rimmawi, 1992; Zhang et al., 2011) and international tourism settings (Lew & McKercher, 2002; McKercher, Chan, & Lam, 2008). Such inverse relationships were evident even when perceived distance was taken into consideration (Zhang et al., 2011), suggesting the law can also be expanded to psychological aspects. Other findings also include the validity of the distance decay model when controlling for the frequency of previous visits (Paul & Rimmawi, 1992) or tourists' attitudes and other psychological traits (Zhang et al., 2011).

Although distance decay model studies have underscored the importance of considering distance in tourism, such work has largely been limited to analyzing behavioral aspects of visitors using simple statistics. Furthermore, the lack of explicit comment on Tobler's law suggests that tourism scholars have been relatively slow in incorporating the law into their research. However, more recently published works have attempted to utilize Tobler's law in an effort to more effectively explain tourism phenomena (Ahn & McKercher, 2015; Eagles, Johnson, Potwarka, & Parent, 2015; Ho & McKercher, 2014; Zhang et al., 2011). Ho and McKercher (2014), in their study of Hong Kong visitors, showed the filtering effect of distance which leads to different visitor segmentation and behavior. In another study of Hong Kong visitors, Ahn and McKercher (2015) examined the effect of cultural distance on visitor motivation. Noticeably, Eagles et al. (2015), in their study of visitors to Canadian parks, suggested that the classic distance decay model with a smooth exponential decay curve (i.e., Tobler's law) may not hold in some cases. However, even with such exceptions, Eagles et al. (2015) accepted the general idea of the law and suggested a modified version of it.

Despite the academic progress apparent in more recent works, much room for further contribution exists. Most research focusing on the distance decay model (if not all), has relied on secondary data provided by convention and visitor bureaus (see Ahn & McKercher, 2015; Ho & McKercher, 2014; Zhang et al., 2011) or

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