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# Synergy and congestion in the tourist destination life cycle

Sam Cole

*Department of Urban and Regional Planning, University at Buffalo, South Campus, Hayes Hall, Main St., NY 14214, USA*

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ABSTRACT

Discussion of agglomeration and clustering in the tourist area life cycle (TALC) literature has not led to a corresponding change of the principal equation used to formalize the model. This paper proposes a modification that accounts for the synergies between the accommodation, entertainment, and other components of a tourist destination. The modified model is contrasted with the original TALC and estimated for a cross-section of Caribbean and other island destinations. Estimations based on visitor expenditures and experts' evaluations of destination authenticity are compared. The results illustrate how parameters representing synergy and congestion vary across tourism styles and time. The implications for destination growth are illustrated by comparing the solution to the proposed model with the TALC. The model exposes a core dilemma that while destinations should realize positive synergies to achieve self-sustaining growth, with this threshold achieved, the resulting pace of investment may drive destinations to overshoot, and uneven growth.



## 1. Introduction

The tourist area life cycle model (TALC) as set out by Butler (1980) in his seminal article describes the stages of a destination's progression from exploration, involvement, development, consolidation, stagnation, to rejuvenation or decline, with the growth of visitors at a destination is depicted by what Butler describes as a "basic S-curve". This article alone has garnered over 1500 journal citations. In a recent two volume collection summarizing and elaborating TALC edited by Butler (Vol. 1, 2005a; Vol. 2, 2005b), Lagiewski lists 52 empirical studies of the TALC (2005:27). Most seek to assess the theory for selected destinations and show a reasonable correspondence to the stages of the cycle. Few of these studies, however, venture into formal statistical testing of the Butler's S-curve (Casanovas & Rossello, 2010). Karplus and Kracover (2005) conclude that "most of the critical studies have based their findings on interpretive analysis of the data and have not used statistical procedures to substantiate their findings." They maintain, however, that "Without first translating Butler's model into a mathematical expression and then testing the correlation between the observed data and the conceptual model, it is hard to assess the significance of the deviations from the life cycle model."

The core equation of the TALC S-curve, originally proposed in an earlier paper by Brougham and Butler (1972) models how a self-reproducing system evolves within some fixed constraint, or "carrying capacity." It remains the basic core equation for the TALC. This is somewhat surprising, given the relatively vast literature on the TALC, analyzing each stage from entrepreneurial-take-off (Russell & Faulkner, 1999) to post-maturity decline (Priestley & Mundet, 1998), or the chaining of models to account for product succession and destination–competition (Lundtorp & Wanhill, 2001; Moore and Whitehal, 2004). Haywood (1986, 2005) suggests exploring other evolutionary curves or different variables such as using total person numbers rather than arrivals. Others have proposed curve-fitting approaches such as multi-variable polynomial (Gonçalves & Águas, 1997), market elasticity (Prideaux, 2000), general equilibrium (Lozano, Gómez, & Rey-Maquieira, 2008), or stochastic approaches (Casanovas & Rossello, 2010; Karplus & Kracover, 2005). Rather than seek a radical departure from the basic TALC equation, the approach here is to explore a modest modification that accounts for the clustering of tourism enterprises and products, and the globalization of tourism demand and investment (Cole, 2007, 2009). This paper demonstrates empirically the overwhelming importance of realizing mutual synergies in the development of tourist products and destinations and the implications for the destination life cycle.

## 2. Carrying capacity and agglomeration

Of all the ideas underlying the TALC, that of "carrying capacity" has received the most scrutiny (Butler, 1999, 2009; McCool and Lime, 2001; Mexa & Coccosis, 2004). In Brougham and Butler's original formulation, discussed further below, this is defined as the "maximum number of visitors" at a destination, perhaps giving the

*E-mail address:* samcole@buffalo.edu.

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impression of a rigid constraint. This might also be the reading of the widely reproduced, almost iconic, S-curve diagram from Butler (1980, Figure 1) that accompanies most discussions of the TALC. It shows the "critical range of elements of capacity" that represents the "peak number of visitors"….. as "capacity levels for many variables have been reached or exceeded with attendant environmental, social, and economic problems" (Butler, 1980:8). Such perceptions may be behind Franklin and Crang's (2001) remark that "the widely taught resort cycle model… is the archetypal villain of the misconception that tourism is a more or less constant cultural phenomenon." Wilkinson (2003), after reviewing several formal definitions of carrying capacity – physical, perceptual, economic, and institutional, asserts that "there has not been any real advance in how to apply the concept in practice or in the understanding of what it means in principle".

Mexa and Coccosis (2004), in contrast, consider that carrying capacity when viewed in the context of broader policies and priorities and assessed using appropriate "physical-ecological, socio-cultural, and politico-economic" indicators remain a useful concept for tourism management and development. Butler (2005a) observes that carrying capacity "was always envisaged as having several components and not as a single "magic" number, [which is] impractical to determine even in wilderness areas let alone in such a varied setting as a resort or destination." In their formal exposition of the TALC, Brougham and Butler (1972:6) note the limitations on the expansion, and congestion of facilities. Congestion indeed may be a better general term since it implies a process rather than an ill-defined limit. In either case, carrying capacity or congestion, it is a complicated mix of factors that empirically appear to be directly, but more often indirectly, related to the intensity of tourism activity at a destination. On balance, the term is about as multi-faceted and contested as many other widely used abstractions such as markets, multipliers, heritage, community, even tourism itself. In this paper, the concern is less the ambiguity of the carrying capacity concept than that, as used in the TALC equation, it imposes such a negative connotation on increasing tourism intensity.

This paper modifies the TALC equation to account for the positive effects of increasing tourism intensity on visitor satisfaction. As with congestion, these synergies arise from the agglomeration of visitors, tourist enterprises, and residents' activities within a destination, but are associated primarily with the clustering of activities during the earlier involvement and development stages of the cycle, before the effects of congestion become apparent. The impression from the TALC literature is that authors consider that the synergistic potential of agglomeration is already accounted for in the logistic equation. Again, in the recent edited volumes (Butler, 2005a, b; Haywood, 2005:33), for example, observes that "cooperation in elements leads to synergies". Hall (2005:77) remarks that there are "a number of agglomeration paths" and "the necessity to gain the required momentum to set the self-reinforcing agglomeration". Russell (2005:172) too comments on the "advantage accorded by primacy and the agglomeration effect", while Manente and Pechlaner (2005:245) note "the spatial clustering of functions to achieve agglomeration". Papatheodorou observes that, as a destination develops, "Facilities are expected to increase in a self-reinforcing manner inducing more people to visit the particular resort and casting agglomeration shadows in proximate tourist areas" (2005:80). Synergies are treated in a similar way with Manente and Pechlener's discussion of "fruitful synergies between government bodies" (2005:118), or "synergies with other destinations" (2005:245), or "synergies between tourism and the rest of the economy" (2005:245). Weizenegger (2005:118) also observes the "partnership between entrepreneurs and government bodies often form fruitful synergies". Berry remarks on "the failure of business to agglomerate" (2005:254), and so on. Clearly, these authors recognize the importance across the many dimensions of the agglomeration–clustering–synergy process, not least the clustering of like and complementary activities within human settlements that leads to a mutual growth process of activities and settlements. It is reasonable, therefore, that this phenomenon be included in the formal model.

A basic question in modeling any complicated process such as the TALC is raised by Coles (in Butler, 2005b:57, referencing Debbage, 1990) in "Enigma Variations" who asks "Fundamentally, is the destination a single coherent product that depends on synergies among its constituent elements or is it a series of products in a loosely linked logical configuration?" Both the TALC formulation and the modification in this paper formally treat destinations as singular evolving products. However, underlying such gross simplification is the recognition of an underlying structure. Tourism destinations' societies and economies have often evolved over centuries from a layering of industries and populations, with tourism as only the most recent addition (see e.g. Cole, 1995). The TALC and wider tourism literature groups the interactions within and between a destination's variously defined components primarily in terms of place (natural and historic heritage), residents (indigenous and migrant), enterprises (tourist industry and mediators), and visitors (markets and identity). Moreover, while the TALC models a single destination, it embodies implicit assumptions about global markets, tastes, investment, and competition. The modification discussed in this paper seeks to parameterize and estimate the collective synergies between these components. Their configuration and mutual positive and negative feedbacks change along the life cycle, so that, for example, as described in Butler's (1980) paper, in the explorer phase, prior to take-off, the primary relationships are between place and visitor: in later mature stages, tourist enterprises through marketing and branding may become the primary determinant, but increasingly affected by feedbacks due to tourism-determined changes with place and residents. So the issue is really whether these structures exhibit collective properties, and the circumstances under which these might be attributed to specific components and relationships.

With respect to agglomeration itself, the wider tourism and related development literatures emphasize different aspects focusing on actors (e.g. tourists), attractiveness (ambience) motivations (e.g. adventure), actions (e.g. investment), configurations (e.g. clusters), commonality of purpose (e.g. communitas), or outcomes (e.g. stagnation). For clarity, the primary meanings attached here are as follows: agglomeration at a tourist destination is a geographic and ideational clustering process that *may* lead to synergy and congestion with differential benefits to its sub-communities – visitors, enterprises, and residents – that bring about changes in individual and collective attitudes and behavior that in turn impact the destinations growth trajectory, that might promote a self-sustaining and sustainable development cycle.

## 3. Synergy – the missing ingredient from the TALC equation

In his discussion of the origins of the TALC, Butler (2005a) states that "the real origins of the TALC lie in a now rather obscure and unpublished paper" (Brougham & Butler, 1972). In this paper they suggested that the tourist destination development process might be satisfactorily approximated by the solution to the logistic equation[1]:

[1] There is a small notation issue in Butler (2005a) that has been remedied in Equation (1). The original article is not available. Brougham and Butler (1972) also proposed a continuous time-dependent solution that might be considered as an approximation to (1) since equations of this form have exact solutions as $V = kM/\{k + \exp(-kM(t - t'))\}$ This is the form of the equation used by Lundtorp and Wanhill (2001) and others.