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Yield applied to destination management: an inefficient analogy?

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This paper reports on a research project that examines the use of yield as a performance indicator for destination management. It reviews the history, definitions and use of yield and yield management in hospitality and transport businesses and then examines how these ideas have been transferred to the literature of tourism destinations. A series of recommendations on usage of the term 'yield' are provided.

Keywords: yield; yield management; destination; analogy

Proactive management of tourism destinations is generally agreed to be a desirable activity leading to more sustainable economic, social and environmental outcomes. Conversely, unmanaged growth in a destination has been suggested to follow a pattern of growth and decline (Butler, 1980). Destination management, therefore, is an important task that involves the collaboration and coordination of a heterogeneous mix of stakeholders. In order to develop a common direction or objective for a destination, destination visioning (Ritchie, 1999) has been used as a point of departure for development of a destination plan. Such objective setting is common in the development of a tourism plan, whether for a geographic area or based on a particular sector (accommodation) or product (wine tourism) (Baidal, 2004). 'Contemporary planning approaches involve a list of desired objectives which are established by taking into account the socio-economic and political conditions in the countries' (Tosun and Jenkins, 1998, p 111).

One advantage of developing clear objectives for a destination is that it communicates a desired future outcome for a tourism destination to the heterogeneous stakeholders within that destination. Developing such objectives is fraught with difficulty, well beyond that encountered in the planning and management of an individual business. Multiple stakeholder groups will often have individual objectives that are difficult to reconcile. An example here may be the divergent opinions concerning tourism of those in a destination who are

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affected by the noise of a new automotive racing event and those who are not (Fredline, 2002). Similar potential for conflicts of opinion are commonly noted in tourism studies between environmentalists and tour operators (Hall and Wouters, 1994). A less well-documented, but no less important, debate often occurs between tourism operators within a tourism destination regarding the objective and allocation of resources for marketing and promotion (Ooi, 2004). If set, clear objectives help provide a point of reference for these disparate points of view.

A variety of theoretically based outcome objectives for tourism in destinations have been examined in the tourism literature. The concept of tourism destination carrying capacity, derived from discussions of biological resource limitations, is an example of a concept that provides guidance for destination managers as to the appropriate objectives for a destination. The concept is based on the relationship between the growth of a herd of wild animals and the available supply of food. By analogy, this concept has been applied to a tourism destination in the work of Butler (1980, 2003) and others (O'Reilly, 1986; Canestrelli and Costa, 1991), and subsequently applied to the social carrying capacity (Saveriades, 2000). However, this use of analogy has not been without criticism (Wall, 1982; McCool and Lime, 2001), based on difficulties in actually identifying the capacity limit, or even if capacity limits exist.

In this paper, the use of 'yield' as a type of objective commonly used in tourism plans is considered. Typically, this is done through setting an objective to target high-yield tourists (for example, Department of Industry Tourism and Resources, 2003; Ministry for Tourism, 2004), as low-yield tourists are seen as 'profitless volume' (Faulkner, 2002, p 519). As a concept, yield has been imported into the tourism destination literature by analogy, not from biological systems but from hotel management systems. It is only recently, however, that some discussion has taken place on the usefulness of yield as a measure, what it means and how to measure it (Dwyer and Forsyth, 1997; Becken and Butcher, 2005; Nguyen *et al*, 2005; Salma and Heaney, 2005). This literature discussion has highlighted problems of definition regarding the concept of yield and its use in tourism. This issue was highlighted by Tourism Queensland during the development of a State Tourism Plan, and was subsequently the focus of a research project, the results of which are reported here. The aim of the research project (and subsequently this paper) was to examine the use of the concept of yield in tourism and to recommend how the term 'yield' should be used at the destination level. This examination highlighted important issues not previously addressed, indicating confusion in the transference of the concept of yield from the hospitality and transport literature to that of tourism destinations. The results of a literature review and survey of tourism stakeholders are reported below, along with recommendations on defining yield in a way that avoids conceptual confusion.

History, definition and purpose of 'yield' and yield management

The term 'yield' is commonly used in agriculture and finance, where it generally refers to the amount of something (wheat or money) obtained per unit of capacity (hectare or dollar). For example, the yield of a field of wheat may be one tonne of wheat per hectare. In a similar manner, this term has been applied more recently in business sectors, such as transport and accommodation. These businesses share the characteristic that they are subject to a capacity constraint, such as the number of rooms in a hotel or the number of seats in an aeroplane. Here, yield is defined as the return in dollar terms per unit of capacity (such as the room each night). Yield was probably first introduced by the aviation sector, but is now also used in several other sectors that share similar booking and pricing systems and operating characteristics, including accommodation, rental cars, cruise lines and other travel industries (Mainzer, 2004).

The concept of 'yield' is related to that of yield management. Yield management is 'a procedure which is used by service organizations to maximize revenue under conditions of fluctuating demand and where the product is perishable' (Lee-Ross and Johns, 1997, p 66). The aim of a yield management procedure is to increase, or indeed maximize, profitability of a business (Kimes, 1989; Relihan, 1989; Lieberman, 1993). Kimes (1989, p 14) states yield management is '. . . the process of allocating . . . capacity to . . . maximize revenue or yield'. For the hotel sector, Relihan (1989, p 40) considers that it '. . . involves the application of basic economic principles to pricing and controlling rooms inventory for the purposes of maximizing revenues'. In the context of individual businesses, and consistent with the explicit aims of commercial enterprises, revenue or profit are the key objectives and yield management is a procedure for maximizing profit.[1] The astute reader will note that profit and revenue are used interchangeably here while, in strict economic terms, they are distinct concepts.

Yield management as a procedure is appropriate in situations where a number of conditions are met. These include when capacity is fixed, the inventory is perishable, the customer can be segmented, demand is variable and the product is sold in advance of use (Kimes, 1989). Additional conditions other authors suggest are that the cost per sale is marginal and the production cost per unit is high (Lieberman, 1993; Schwartz, 1998). Further, the successful implementation of yield management requires the ability to track, segment and forecast demand, understand the likely impact of forecast demand conditions on the profit of the operation, provision of accurate and timely information on inventory and the availability of management to monitor performance of the yield management procedure (Griffin, 1996). In such conditions, yield management requires a set of management decisions that jointly determine the relationship between revenue and profit. Such decisions include the allocation of rooms or seats to various price points, dependent on forecast demand by segment. Once these decisions are made, there is little that management can do to affect costs of production. As a result of these decisions, increases in revenue are essentially directly proportional to increases in profit.

Within the yield management procedure, yield is a performance indicator that is used as a proxy for profit. The actual way to measure yield in a particular operation is chosen so that as profit increases, so does yield. The performance indicator may be measured by total customer revenue per room night (including food, wine and other revenues), or room revenue only. The choice of which way to measure yield depends on the nature of the establishment (does it have a restaurant?) and the ability of the management to relate expenditure accurately to customers (is there a unique customer-tracking mechanism, such as an electronic card, so all customer expenditure can be tracked?). Airline profit maximization applying yield management uses procedures such as distributing seat capacity according to various sectors, booking lead period and class of seat (Chen *et al*, 2003). Thus, use of yield management in a business requires knowledge about the relationship between capacity utilization and profit. Measurement of yield is an intermediate step that allows simplification and approximation of the relationship between customers of a particular segment and profit.

There are a variety of different processes applied under the banner of yield management. In the hospitality literature, these include implementation and support of an overbooking policy, developing minimum or maximum stay rules, implementing last minute walk-in rates and controlling the number of reservations accepted per night and by room type (Upchurch *et al*, 2002).

It should be noted that in the hospitality literature there is a debate about the relationship between yield management practices and long-term profitability. In some situations, techniques such as overbooking can lead to disgruntled customers who may cause damage to the reputation of the hotel through negative publicity (Okumus, 2004), or through employee dissatisfaction. Similarly, it is usual practice to 'relax' yield management proscribed rates for loyal customers. Further, for small operators, there may be less potential to 'segment' customers. Small to medium-sized hotels must be imaginative in the way they differentiate their product, and customers must appreciate and accept why some hotel rooms are higher priced than others. Small businesses also may not have the trained staff and systems necessary for implementation of yield management.

Definition of yield as applied to tourism destinations

The concept of yield has also been applied to tourism destination management. For example, the idea of obtaining high-yield visitors is discussed in the recent Australian Tourism White Paper (Department of Industry Tourism and Resources, 2003). Similar usage of 'yield' is discussed in tourism plans for countries, regions and cities around the world. However, a recent study by Becken and Butcher (2005) found that yield management had been applied in destination management, often without clear definition.

There are a number of reasons why there is a lack of clarity about the definition of yield as applied to tourism destinations. As has been discussed above, yield in an individual business is used as a proxy for profit: the higher the yield, the higher the profit. However, in the context of destinations, the 'profit' that should be maximized depends on the viewpoint of the stakeholder. For a regional tourism organization, the profit outcome may be total visitor revenue. For the local council, the 'profit' outcome may be jobs. For the national government, the profit outcome may be taxation revenue or value added. As a result, the way the generic term 'yield' is defined varies by stakeholder because each has a different idea of 'profit'.

The idea of different definitions of yield has been examined in detail in a study in New Zealand (Simmons, 2005). This produced three varying definitions of yield. For the individual business, the term 'financial yield' is used

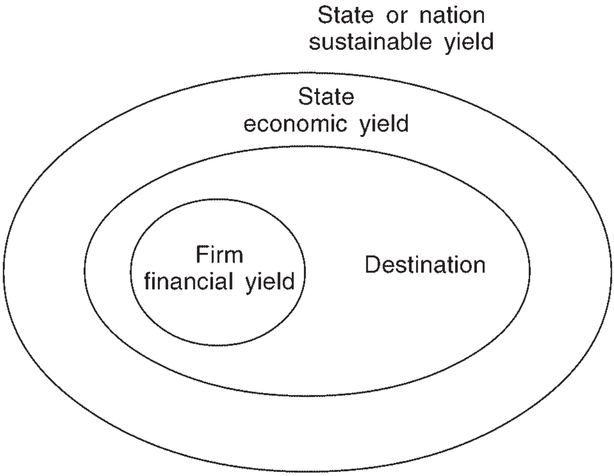

Figure 1. Conceptualization of geographical levels of yield.
Source: http://www.lincoln.ac.nz/trrec/tsmyield.htm.

to refer to profit (called 'residual income', specifically to exclude items such as depreciation). From a regional or national economic viewpoint, economic yield is used to encompass all monetary costs and/or benefits attributable to the tourism sector. Finally, a sustainable yield perspective requires inclusion of non-market services provided 'free of charge' (for instance, not transactionally evident). Examples include ecosystem services, natural capital, culture and 'life-style' advantages. These three different definitions of yield (Figure 1) are considered useful at different levels, with economic yield applied at the state level and sustainable yield applied at the national level. However, this still does not indicate how yield should be defined and/or measured at the destination level.

A second reason for the lack of clarity of the definition of yield as applied to destinations is that the relationship between profit and the characteristics of visitors has not been studied in detail. One study that has empirically examined the relationship between visitor characteristics and profitability of visitors was conducted by Becken and Butcher (2005). The analysis revealed that while there were differences in expenditure and value-added patterns for the six tourist types, the ranking of tourists by expenditure was the same as their ranking by value added, but different in terms of their employment impacts. This indicates that the mix of visitors affects total destination expenditure and tourism jobs in different ways. For each destination, there is a need to calibrate the relationship between visitor characteristics and profit.

Dwyer and Forsyth (1997, p 35) write

> '. . . it is not really possible, on the basis of currently available information, to distinguish different yields or net benefits to the nation as a whole from different tourist types beyond their gross and net expenditures, and their length of stay. The best available overall indicator of the yield from foreign

> tourism appears to be net domestic tourist expenditure (total expenditure less leakages on imports). Since information about direct and indirect leakages of expenditure abroad is unlikely to be available for different types of tourists, it will normally be sufficient to take the gross expenditure as a proxy for yield.'

Recent work by Dwyer *et al* (2005) using techniques such as Tourism Satellite Accounts (TSA) and computable general equilibrium (CGE) models has made progress on developing measures of yield for the economy of Australia as a whole. However, as will be discussed below, there remains insufficient information to determine the effect of different yielding visitors on particular destinations, such as the Gold Coast or Tropical North Queensland.

The use of yield management procedures for destinations

The concept of yield management does not appear to apply well to destinations. As will be discussed below, there are a number of reasons why the hotel can only be partially used as an analogy for a destination. There are some significant differences between destinations and individual businesses that limit the direct application of yield as an objective for destinations. These differences include:

(1) In most destinations, capacity constraints are less important compared to demand deficiencies. For example, in the outback region of Queensland, significant excess capacity exists virtually all year round and the major requirement to improve overall tourism destination profitability is to grow demand.
(2) There is no one manager of a destination (although destination management organizations perform some coordination functions) and different operators have different capacity utilization. Further, different capacity levels produce different levels of profit. Each operator is different, and some businesses may require a small number of high-value customers (a small eco-lodge), while others profit more from increases in the destination volume overall (an event or attraction).
(3) Information that can be used to set management targets and to measure performance against these targets is not often available in a timely fashion at the destination level. Interestingly, profit information is regularly and readily available for almost all businesses in a destination and could theoretically be collated by sector and aggregated (assuming practical issues of confidentiality are overcome, as in systems such as the Sustainable Tourism Cooperative Research Centre (STCRC) Industry Performance Analyser for Tourism (IPAT) – a web-based system for collection and reporting of data from tourism operators). However, the data and systems for collecting and analysing the required information in a timely manner for forecasting, and therefore yield management, are not available at this time.
(4) The constraints for a destination are different to those for an individual business. They include the social and environmental carrying capacity, as well as economic capacity (as measured by variables such as the amount of promotional expenditure available).

Table 1 . Comparison of conditions required for use of yield management between a hotel and a destination.

	Hotel	Destination
Appropriate targets available (for instance, profit target)	Yes	Not always
Capacity is fixed in the short term	Yes	Yes
Inventory is perishable	Yes	Yes
Customer can be segmented	Yes	Yes
Demand is variable	Yes	Yes
Product is sold in advance of use	Yes	Not always
Cost per sale is marginal	Yes	Not known
Production cost per unit is high	Yes	Not known
Ability to track, segment and forecast demand	Not always	Not always
The likely impact of forecast demand conditions on the profit of the operation is known	Not always	Not known
Accurate and timely information on inventory is available	Yes	Not always
Availability of management able to monitor performance of the yield management procedure	Yes	Rarely

(5) For most destinations, the relationship between customer demand, the characteristics of a destination and overall profitability (as well as social and environmental impacts) is not known, and possibly never will be known.

As a result, the appropriateness of yield management as a procedure for a destination is questionable. The differences between hotels and destinations as objects for use of yield management are shown in Table 1. Hotels usually have a stated objective and, through the use of standard accounting techniques (using information that is available to the management), can track demand by segment, and even forecast demand. In contrast, destinations usually lack the comprehensive information necessary to detail cost per sale, or measure production costs for a visitor. Further, destinations do not usually have access to all hotel inventories, or the ability to monitor performance in ‘real time’.

A Queensland industry yield survey

To determine the perspectives of the Queensland tourism industry regarding performance measures and yield, twenty stakeholder interviews were conducted. Respondents were selected at random from a list of regional tourism stakeholders provided by Tourism Queensland. Respondents were interviewed by telephone, with each interview taking around ten minutes. Completed interviews were recorded as notes and subsequently examined by the authors to extract the main themes. These individuals represented a cross-section of destinations and sectors, including accommodation providers, attractions, airports, retail businesses, regional tourism organizations, local tourism organizations and local associations. For both the business and destination levels, the responses illustrated the variety of performance measures that could be used. In most cases, the suggested measures related to financial variables such as profit, revenue, yield, sales and return on investment. However, some consideration was also given to customer issues such as quality and satisfaction. This was more evident for the destination level, where it was suggested that performance could be measured according to industry health and marketing impact. Despite this, the main destination performance measure was still considered to be visitor numbers.

Not surprisingly, there appeared to be a relatively clear understanding of yield management at the business level, as each operation aimed to maximize revenue through pricing mechanisms. However, there was no consensus on how yield could be applied at the destination level. Despite this, the majority of respondents considered increasing tourism yield to be a good strategy for Queensland. Responsibility for increasing yield could be considered at two levels. Firstly, many respondents considered yield the responsibility of the business. Some focused on specific roles, such as the managing director or marketing, while others believed it was all those within the business. Secondly, the respondents considered yield the responsibility of everyone in the industry and, as such, required cooperation and collaboration between stakeholders.

Individual businesses will continue to use yield management techniques to increase revenue from visitor expenditure. However, while increasing yield may be a good strategy for a destination or the State as a whole, and may indeed be targeted, yield as an objective for performance at this level is fraught with difficulties in terms of both definition and measurement. As a result, it is clear that there are differences in the use of yield for individual businesses and at the destination level.

Analogy and the use of yield for destination management

This analysis indicates a series of issues and problems in the use of yield in destinations. These problems are symptoms of the failure of the analogy between destinations and individual businesses. An analogy is often used to develop theory in new areas of study. However, once analogy has been applied, it is always instructive and useful to determine the degree to which the analogy applies. In this case, the analogy suggests that destinations are like businesses and, therefore, the same performance indicators can be used in both. However, as has been found, there are numerous reasons why yield may not be the most appropriate performance indicator for destinations.

Yield has been used in the tourism destination literature as a simple indicator or proxy to allow discussion of a very complex issue. Yield, like expenditure, visitor numbers, regional distribution of tourists, generation of jobs, etc, is simply a measure of a desired outcome from a process of attracting tourists to a destination. It is very unlikely that one indicator (such as yield) of the desired outcome of attracting visitors to a destination will ever be entirely suitable. For example, it is likely that focusing on high-yield domestic tourists to Queensland (at the expense of a broader tourist market) would reduce remote regional visitation.

This paper has found that in tourism destination planning, the idea of yield is conceptually appealing, but is fraught with fundamental practical and measurement issues. In comparison to a hotel, tourism destinations must balance competing interests (such as attractions, hotels) that may have different target market segments, with limited knowledge of different segment expenditure and little knowledge of future demand or ability to influence it. Further, the use of yield to select segments for targeting of marketing expenditure must be rooted in the ability to deliver on that message.

The idea of yield is more complex at a destination level and its usefulness is dependent on a number of factors, such as:

(1) The type of capacity and capacity utilization of operators in a region and the segmentation and demand from customers.
(2) The amount of promotional money (assuming this is important in attracting visitors).
(3) Constraints, such as social and environmental burden.
(4) Longer term need and ability to develop new products and retain level of demand.
(5) Peak capacity utilization versus off-peak capacity.

Instead of yield, it is considered that revenue at a destination level is a better measure, assuming that destination capacity constraints are not exceeded. The use of revenue will only provide a simple measure of yield – many more complex and sophisticated measures may exist, but they are difficult, or impossible, to use at a destination level. However, revenue provides a useful first approach for destination managers. While it does not measure social or environmental impacts in many destinations in Australia, there are no simple measures for such impacts.

As a result of this discussion, the following recommendations are provided as a basis for further discussion of destination performance measures and to contrast with the current use of the concept of yield.

- The appropriate performance measure at the business level is profit. To maximize profit, various tools can be used, including increasing visitor numbers and cost reduction. For businesses with fixed capacity and demand that exceeds capacity, yield management can also be used. Alternatively, for other businesses, the aim will be to increase visitation, thereby increasing utilization of the available capacity.
- Despite the limitations of using revenue as a performance indicator, discussed in detail by Dwyer *et al* (2005), at this time the most appropriate economic performance measure for many destinations is revenue, as it is one of the few practical and measurable performance indicators. Increased revenue can be achieved through approaches such as increased visitation, increased length of stay and increased visitor expenditure. While other measures may be possible, they are currently difficult, if not impossible, to implement practically.
- An appropriate performance measure at the state level is sustainability – economic, social and environmental.

Finally, until the study of destinations is more complete, it is considered necessary to return to use of yield as an indicator of economic performance, and it is suggested that revenue is the appropriate measure of yield. This is merely a return to what yield and yield management were meant to achieve in the first place. However, this should not be to the exclusion of other important performance measures related to social and environmental carrying capacity. Instead, clarity in a definition of yield as economic profit allows other measures to be developed to cater for other non-economic performance measures. This, in turn, may allow use of concepts such as the balanced scorecard (Kaplan and Norton, 1996; Hepworth, 1998; Frimanson and Lind, 2001).

The simplest approach to further development of concepts in this area may be to define a new indicator of sustainable destination performance. It is clear that use of an existing term such as yield may lead to confusion among industry operators, who do not understand the term's new application to sustainable destinations. This paper has demonstrated that extension of the use of terms such as yield by analogy to new situations requires review to ensure that the analogy reflects practice. If not, then the analogy fails and some new approach is required. This paper has illustrated that the analogy under consideration does not 'fit' exactly and should be reconsidered. It has further suggested that appropriate definitions for yield are economic in nature and related measures have been defined at the individual business and destination level. Use of yield as a multiple measure may be possible, but ultimately confusing, and an alternative term preferable.

Further research

One reason why the term 'yield' is used in a confused manner when applied to destinations is that the use of one performance measure is much more difficult for a destination compared to an individual business. Different stakeholders in a destination may have different performance outcomes (Schneider *et al*, 1998) and one measure of yield may not suit all operators in a destination. While visitor expenditure can indicate relative importance of a particular market, use of it as an indicator of profitability is misleading because profit is only a small proportion of visitor expenditure and is not uniform across industries or sectors (Salma *et al*, 2004). It may be possible to apply the concepts of the balanced scorecard to destinations as a way of meeting multiple objectives. It is necessary to develop a model for destinations that relates visitor numbers to profit and other outcome measures.

Endnotes

1. Profit maximization is important but it would be naïve to assume that this is the only priority for small tourism enterprises. Lee-Ross and Johns (1997) argue that these enterprises are probably more concerned with less tangible, more complex objectives, such as entrepreneurial status and survival, than profit maximization.

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