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Importance-performance analysis: A valid management tool?

Ivan Sever*

Institute for Tourism, Zagreb, Croatia

HIGHLIGHTS

- Conceptual and methodological issues in IPA are addressed.
- The paper establishes criteria for optimal classification of attributes in IPA.
- The paper establishes criteria for statistical evaluation of IPA.
- The measures of IPA validity and reliability are presented.

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ABSTRACT

Importance-performance analysis (IPA) is considered a useful tool in examining customer satisfaction and management strategies. This technique can help tourism stakeholders in diagnosing underlying deficiencies and setting priorities in tourism development. As a result, a more efficient allocation of limited resources could be achieved to improve tourist satisfaction and destination competitiveness. However, some conceptual and methodological issues undermine its performance. This paper discusses the applicability of receiver operating characteristic (ROC) analysis in dealing with these issues. This powerful diagnostic tool could provide the criteria for optimal categorization of elements in IPA framework, while testing its validity and reliability. The proposed method clearly outperformed the standard IPA approaches and set the path for more rigorous IPA studies that should more reliably assist management in the decision-making process.

1. Introduction

Importance-performance analysis (IPA) is a business research technique developed as a market tool to examine and suggest management strategies (Martilla & James, 1977). Although originally developed for marketing purposes, its application has extended to various fields, including: tourism (Azzopardi & Nash, 2013; Chu & Choi, 2000; Coghlan, 2012; Dwyer, Knezevic Celbar, Edwards, & Mihalic, 2012; Enright & Newton, 2004; Liu, Liu, Huang, & Wen, 2010; Oh, 2001; Ziegler, Dearden, & Rollins, 2012), food services (Tontini & Silveira, 2007), education (Alberty & Mihalik, 1989; Nale, Rauch, Wathen, & Barr, 2000; O'Neill & Palmer, 2004), healthcare (Abalo, Varela, & Manzano, 2007; Dolinsky & Caputo, 1991; Hawes & Rao, 1985), banking (Joseph, Allbright, Stone, Sekhon, & Tinson, 2005; Yeo, 2003), public administration (Van Ryzin & Immerwahr, 2007), e-business (Levenburg & Magal, 2005) and information technologies (Skok, Kophamel, & Richardson, 2001). The key objective of IPA is to diagnose the performance of different product or service attributes, while facilitating data interpretation and deriving practical suggestions for management (Dwyer et al., 2012). By identifying the most crucial attributes, i.e. the strengths and weaknesses, IPA yields insights into which product or service areas managers should focus (Abalo et al., 2007; Chu & Choi, 2000). Therefore, it prioritizes management actions to suggest the optimal allocation of limited resources that should improve and sustain customer satisfaction.

The dominant model in assessing customer satisfaction is based on the disconfirmation of expectations paradigm (Matzler, Bailom, Hinterhuber, Renzl, & Pichler, 2004; Oliver, 2010). This model implies that perceived performance greater than expectations leads to positive disconfirmation (i.e. satisfaction) whereas expectations greater than perceived performance leads to negative disconfirmation (i.e. dissatisfaction). The IPA itself is considered an expectation-disconfirmation model that models customer satisfaction as a function of importance (or, alternatively, expectations)

* Institute for Tourism, Vrhovec 5, 10000 Zagreb, Croatia. Tel.: +385 1 39 09 666; fax: +385 1 39 09 667.
E-mail address: ivan.sever@iztzg.hr.

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and performance of different product or service attributes (Martilla & James, 1977; Oh, 2001). Considering these aspects separately would be ineffective. In fact, if examining performance alone, attributes with relatively low scores would require intervention; however, their importance could have been rated even lower, indicating that customers are in fact satisfied and that managers should invest in some other attributes instead.

Therefore, IPA could be a valuable practical tool for supporting management decisions. However, it has some serious drawbacks. Its conceptual and methodological foundations are weak. One of the biggest issues in IPA is selection of the optimal cut-off points (i.e. discriminating thresholds) for classifying performance and importance scores as different classifications lead to different managerial suggestions. This raises concerns over IPA validity in empirical applications (Azzopardi & Nash, 2013; Oh, 2001). The main objective of this research was to investigate underlying conceptual and methodological issues of IPA and suggest possible improvements. More specifically, this paper examines the usefulness of receiver operating characteristic (ROC) curve analysis, often applied in other fields and with other purposes, in dealing with these issues. This technique is recognized as a valuable tool to evaluate diagnostic tests and predictive models in medicine (Bewick, Cheek, & Ball, 2004; Der & Everitt, 2012). The ROC curve analysis could provide precise criteria for the selection of optimal discriminating thresholds in IPA framework and could be used to assess its validity and reliability, thus filling the major gaps currently present in IPA literature.

2. Theoretical background

2.1. The IPA framework

The IPA technique combines measures of customers' perceived performance and importance into a two-dimensional plot to facilitate data interpretation (Martilla & James, 1977). This plot classifies attributes into four categories or quadrants to set the priorities in allocating limited resources. The four quadrants are typically identified as 'keep up the good work' (Q1), 'possible overkill' (Q2), 'low priority' (Q3) and 'concentrate here' (Q4) (Fig. 1).

The first quadrant, 'keep up the good work,' represents major strengths and potential competitive advantages of a product or service. The attributes situated in this quadrant are considered to be performing well and need continued investments. On the other hand, Quadrant 2, the 'possible overkill' area, contains attributes of low importance to customers, which are performing strongly, indicating possible waste of limited resources that are inefficiently used and could be reallocated elsewhere (Dwyer et al., 2012). The attributes that fall into the 'low priority' area, Quadrant 3, are not performing exceptionally well, but are considered to be relatively unimportant to customers; therefore, managers should not be overly concerned with these attributes. They represent minor weaknesses and poor performance is not a major problem. The most crucial region in the plot is Quadrant 4: the 'concentrate here' area. Attributes situated in this quadrant are considered to be underperforming and, as such, represent the product's major weaknesses and threats to its competitiveness. These attributes have the highest priority in terms of investments.

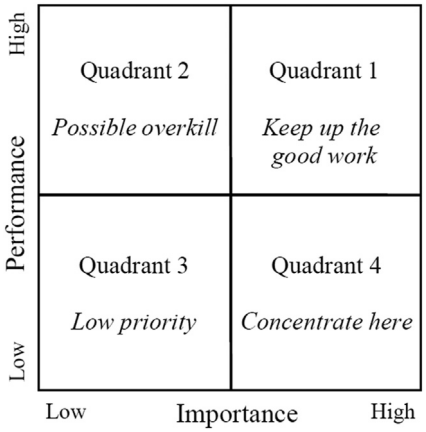

Fig. 1. The standard IPA plot.

Therefore, each quadrant within the standard IPA plot indicates a different strategy for helping managers to identify the areas of concern as well as the necessary actions for improving customer satisfaction (Dwyer et al., 2012). For a proper interpretation of results, it is important to select appropriate locations for the discriminating thresholds – the vertical and horizontal lines that separate the quadrants, which will be discussed in more detail in the following sections.

Some modifications and extensions of the original IPA framework have been proposed. Oliver (2010) recently suggested that the relationship between performance and satisfaction is not completely addressed in the IPA framework and proposed some extensions to increase its conceptual validity in measuring satisfaction. Customer ratings of different product/service attributes do not explain a result for a particular attribute as this approach ignores the psychological processing of performance, which could be very important in shaping satisfaction response. Therefore, the author suggested that satisfaction is not only related to disconfirmation of expectations, but also depends on other terms such as need fulfilment and equity. The proposed modifications to the IPA framework include: a diagonal line as a discriminating threshold between satisfaction and dissatisfaction instead of the original vertical and horizontal lines (Abalo et al., 2007; Azzopardi & Nash, 2013; Ziegler et al., 2012); different ways of measuring the importance and performance and relating them to customer satisfaction (Abalo et al., 2007; Matzler et al., 2004; Mikulic & Prebezac, 2008; Oliver, 2010); as well as expanding the IPA by adding more dimensions (Mikulic & Prebezac, 2012). However, conceptual and methodological issues were rarely addressed in contemporary IPA studies (Azzopardi & Nash, 2013; Oh, 2001).

2.2. Issues underlying the IPA framework

2.2.1. Conceptual issues

No precise definition of the term 'importance'. The importance could be defined as a measure of the perceived value or significance of product or service attributes to an individual (Chu & Choi, 2000). However, the definition of importance raises some issues as it is not precisely and consistently defined in IPA literature (Dwyer et al., 2012; Oh, 2001). Often, importance is interchangeably used with expectations. To distinguish between the two concepts, some authors define importance as a desired outcome and expectations as a tolerated outcome (Oh, 2001).

Interpretation of points near to the discriminating thresholds. The categorization and therefore interpretation of borderline attributes cannot always be unambiguously determined. Some attributes fall in close proximity to the thresholds, making it difficult to interpret such outcomes with a desired level of confidence (Bacon, 2003; Tarrant & Smith, 2002). A small change in the position of such an attribute could lead to a significant change in the proposed management action. Thus, when taking variability into account derived conclusions might not be valid (Wu & Shieh, 2009).

Distinguishing attributes positioned in the same quadrant. The standard IPA approach hardly distinguishes between the attributes