S.E.T for Evaluating and Ranking Banks from Viewpoint of Customers

Hosain Vazifedost ¹ and M. Javad Taghipouryan²

Department of Marketing, Science and Research Branch
Islamic Azad University (I.A.U), Tehran, Iran
vazifedust@yahoo.com

Department of Marketing, Science and Research Branch
Islamic Azad University (I.A.U), Tehran, Iran
jpouryan@yahoo.com,   mj.pourian@srbiau.ac.ir

Abstract

Accurate ranking of banks’ branches is a major concern to management. Whereas current methods that used for ranking in banks aren’t accurate, Appling MCDM methods are closer to reality, so, we suggest a three-stage procedure (S.E.P) for ranking that will help to all of them that want to rank service organizations, for example : ranking banks, hotels and so on. Three-stage procedure (S.E.T) for ranking include: Servperf, Entropy, and Topsis. First, we evaluate service quality from viewpoint of customers by SERVPERF, second for calculating the criteria weights we applied Entropy method. Finally, and we conduct Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) to achieve the final ranking results. An empirical study of ranking banks in public sector is presented to illustrate the effectiveness of the approach. A sample size of 207 participants was collected in three branches of melli bank's Iran, also called the National Bank (margin of Caspian Sea). The samples of 207 respondents were male percent more than female percent, and majority of respondents were below 30 years old (54.4 percent).

Keywords: Servperf - Entropy - Topsis - Multi-criteria decision making (MCDM) – bank
1. INTRODUCTION:

The core of operations research is the development of approaches for optimal decision making. A prominent class of such problems is multi-criteria decision making (MCDM). The typical MCDM problem deals with the evaluation of a set of alternatives in terms of a set of decision criteria (Triantaphyllou & et al, 1998).

The MCDM approach was introduced in the early 1970s and has been continuing to grow vitally since then. Hwang and Yoon (1998) described that MCDM problems include Multiple Attribute Decision Making (MADM) and Multiple Objective Decision Making (MODM). MODM studies decision problems in which the decision space is continuous. A typical example is mathematical programming problems with multiple objective functions. The first reference to this problem, also known as the "vector-maximum" problem, is attributed to. On the other hand, MADM concentrates on problems with discrete decision spaces. In these problems the set of decision alternatives has been predetermined (Triantaphyllou & et al, 1998).

Over the past two decades, a great deal of research has addressed various aspects of service quality (Wetzels & et al, 1998; Abdolvand & Taghipouryan, 2008; Qin and. Prybutok, 2009; Nejati &et al, 2009; ladhari, 2009).

Service quality is generally recognized as a critical success factor in a firm’s endeavors to differentiate itself from its competitors. Research has shown that good service quality leads to the retention of existing customers and the attraction of new ones, reduced costs, an enhanced corporate image, positive word-of-mouth recommendation, and, ultimately, enhanced profitability (ladhari, 2009). Also, Service quality can help an organization to differentiate itself from other organizations and gain a competitive advantage (Abdolvand & Taghipouryan, 2008).

Following the trends observed in the manufacturing sector, service companies are now preoccupied with quality because of the growing competition from globalization, and as a result of the constant increase in customers’ expectations and needs. This has led to the development of research activities aimed at defining, modeling and measuring quality, and also at developing tools and practices to improve it. Some of this research has focused on specific industries, such as health care, tourism and banking (Paquette & et al, 2009).

This paper is about ranking banks from viewpoint of customers by three-stage procedure (S.E.T) in banking industrial in Iran. In this study, First,we evaluate service quality from viewpoint of customers by SERVPERF, then for calculating the criteria
weights we applied Entropy method. Finally, we conduct Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) to achieve the final ranking results.

The rest of this work is organized as follows. Section 2 summaries the concepts of servperf, Entropy and Topsis. Section 3 describes methodology that included samples, measure instrument and reliability. An empirical example is presented in Section 4 and conclusions are made in Section 5.

2- LECTURE REVIEW:

2-1- SERVPERF:

Extensive literature exists on service quality. It is beyond the objectives of this study to conduct a detailed review of the service quality literature. There is plethora of measurement tools and techniques for assessing service quality and consumer satisfaction levels that some of these models have been shown in table (1).

As a brief review, Parasuraman et al. (1988) conceptualized customer evaluations of overall service quality as the gap between expectations and perceptions of service performance levels. They developed the SERVQUAL instrument for measuring service quality offered by service firms. SERVQUAL has five dimensions: reliability, responsiveness, assurance, empathy, and tangibility (Parasuraman et al., 1988; Jaiswal, 2008; Alexandris & et al 2008). However, SERVQUAL differentiates the service quality construct distinguishing between functional service quality (FSQ) (doing things nicely) and technical service quality (TSQ) (doing things right) (Maddern & et al, 2007).

Exceptions and perceptions are measured across 5 dimensions of service quality (Large &Konig, 2009):

- Tangibles: Physical facilities, equipment and appearance of personnel.
- Reliability: Ability to perform the promised service dependably and accurately.
- Responsiveness: Willingness to help customers and provide prompt service.
- Assurance: Knowledge and courtesy of employees and their ability to inspire trust and confidence.
- Empathy: Caring, individualized attention the firm provides for its customers.
Although the SERVQUAL instrument is employed enthusiastically, over the years a number of criticisms related to the length of the survey, the reliability of the instrument, questions about the actual number of factors and the problem of industry specificity of the instrument have been raised, the use of gap scores, the overlap among five dimensions, poor predictive and convergent validity, the ambiguous definition of the “expectation” construct, and unstable dimensionality (Tse and Wilton, 1988; Carman, 1990; Cronin and Taylor, 1992; Babakus and Boller, 1992; Teas, 1993; Peter et al., 1993; Asubonteng et al., 1996; Dabholkar et al., 1996; Mels et al., 1997; van Dyke et al., 1999; Dedeke, 2003; Arasli et al., 2005; Badri et al., 2005; Landrum et al., 2007).

By discarding the expectation portion in the SERVQUAL model, Cronin and Taylor (1992) justify their SERVPERF or performance-only instrument in place of the gap measurement approach. In addition, they provide empirical evidence that the SERVPERF instrument outperforms the SERVQUAL scale across four industries: fast food, dry cleaning, banks and pest control.
Some research has suggested that SERVPERF has better reliability and validity than SERVQUAL, so, SERVPERF are used and suggested by many scholars in various industries (Babakus and Boller, 1992; Cronin and Taylor, 1992; Brady et al., 2002; Landrum and Prybutok, 2004; Hensley and Sulek, 2000; Gilbert, 2006; Qin and Prybutok, 2009).

2-2- ENTROPY:

For solving MCDM problems, it is generally necessary to know the relative importance of each criterion. It is usually given as a set of weights, which are normalized, the importance coefficients in the MCDM methods refer to intrinsic “weight”. The entropy method is the method used for assessing the weight in a given problem because, with this method, the decision matrix for a set of candidate materials contains a certain amount of information. In other words, the entropy method works based on a predefined decision matrix (Shanian & Savadogo, 2006).

The entropy idea is particularly useful for investigating contrasts between sets of data. This method has its roots in information theory and was introduced in 1948 to provide a quantitative measure of the “uncertainty” represented by a discrete probability distribution (Soo, 2004).

Entropy analysis is based on three measures: entropy ($E_j$), degree of divergence ($d_j$), and degree of influence or weight of importance ($w_j$) that this method consists of the following procedure: (Shanian & Savadogo, 2006; Kou & Xiong, 2006; Soo, 2004).

- **Step 1**: Normalizing the decision matrix:
  \[ P_{ij} = \frac{r_{ij}}{\sum_{j=1}^{J} r_{ij}} \quad i = 1,2,...,I \quad j = 1,2,...,J \]  
  \[ \text{Eq. (1)} \]

- **Step 2**: Calculating the entropy with data for each criterion, the entropy of the set of normalized outcomes of the $j$th criterion is given by:
  \[ E_j = -k \sum_{i=1}^{I} \left[ p_{ij} \ln( p_{ij} ) \right] \quad i = 1,2,...,I \quad j = 1,2,...,J \]  
  \[ \text{Eq. (2)} \]

- **Step 3**: weights of criteria:
  \[ d_j = 1 - E_j \]
  \[ w_j = \frac{d_j}{\sum_{j=1}^{J} d_j} \quad \forall j \]  
  \[ \text{Eq. (3)} \]
2-3- TOPSIS:

The TOPSIS method (Technique for Order Preference by Similarity to Ideal Solution) is a linear weighting technique which was first proposed in its crisp version by Chen and Hwang (1992), with reference to Hwang and Yoon (1981) (Bottani & Rizzi, 2006; Jamali & Sayyadi, 2009).

TOPSIS is a popular technique used for rank ordering units by preference or similarity to ideal solution. The underlying logic of TOPSIS is rooted in the ideal solution and the negative ideal solution. Ideal solution is composed of all best values attainable of criteria, whereas negative ideal solution is made up of all worst values (Mukherjee & Nath, 2005).

TOPSIS has been used to solve multi-criteria decision making problem in various scenarios, e.g. to develop a new performance measurement of manufacturing system using both financial and non-financial criteria simultaneously where traditional performance based measurement systems are inadequate (Kim et al., 1997); and for inter-company comparison based on their financial ratios and indicate performance difference between companies on each financial ratio where traditional ratio analysis often give contradictory results (Deng et al., 2000); for assessment of comparative approaches to service quality measurement (Mukherjee & Nath, 2005); for Training Performance Evaluation of Administration Sciences Instructors (nikoomaram & et al, 2009).

The calculation processes of the method are as following: (nikoomaram & et al, 2009; Shyr & Kuo, 2008):

- **Step 1:** Establish the normalized performance matrix:
  The purpose of normalizing the performance matrix is to unify the unit of matrix entries. Assume the original performance matrix is
  \[
  x = (x_{ij}) \quad \forall_{i,j}
  \]
  Eq. (4)
  Where \(x_{ij}\) is the performance of alternative \(i\) to criterion \(j\).

- **Step 2:** Create the weighted normalized performance matrix
  TOPSIS defines the weighted normalized performance matrix as:
  \[
  V = (V_{ij}) \quad \forall_{i,j}
  \]
  \[
  V_{ij} = w_j \times r_{ij} \quad \forall_{i,j}
  \]
  Eq. (5)
  Where \(w_j\) is the weight of criterion \(j\).

- **Step 3:** Determine the ideal solution and negative ideal solution
The ideal solution is computed based on the following equations:

\[
A^* = \left\{ \max_{j \in J'} (V_{ij} / j \in J), (\min_{j \in J'} V_{ij} / j \in J') , i = 1,2,\ldots, m \right\} \\
A = \left\{ \min_{j \in J} (V_{ij} / j \in J'), (\min_{j \in J} V_{ij} / j \in J') , i = 1,2,\ldots, m \right\}
\]

Where

\[j = \{j = 1, 2,\ldots, n / j \text{ belongs to benefit criteria}\} ;
\]
\[j = \{j = 1, 2,\ldots, n / j \text{ belongs to cost criteria}\} ;
\]

- **Step 4**: Calculate the distance between idea solution and negative ideal solution for each alternative:

\[
S_i^+ = \sqrt{\sum_{j=1}^{n} (V_{ij} - V_{ij}^*)^2} \quad i = 1,2,\ldots, m \\
S_i^- = \sqrt{\sum_{j=1}^{n} (V_{ij} - V_{ij}^*)^2} \quad i = 1,2,\ldots, m
\]

- **Step 5**: Calculate the relative closeness to the ideal solution of each alternative

\[
C_i^+ = \frac{S_i^-}{S_i^+ + S_i^-} \quad i = 1,2,\ldots, m
\]

Where \(0 \leq C_i^+ \leq 1\) that is, an alternative \(i\) is closer to \(A_i^*\) as \(C_i^+\) approaches to 1.

- **Step 6**: Rank the preference order

A set of alternatives can be preference ranked according to the descending order of \(C_i^+\).

### 3- METHODOLOGY:

#### 3-1- MEASUREMENT INSTRUMENT & SAMPLES:

Questionnaire that applied in this research is performance-only instrument or Servperf model. In this research, questionnaire have been frame in 2 section: first section related to properties of population , in second section there are 22 questions about 5 dimensions of service quality for assessing perceptions of customers(clients). For each statement, the respondent indicates his or her opinion on a five-point Likert-type scale ranging from “strongly disagree” (1) to “strongly agree” (5).

To test the reliability of the Servperf instrument, we computed Cronbach alpha coefficients. Although the ideal Cronbach alpha value of a scale should be
above 0.7, the minimal Cronbach alpha value of 0.6 suggested by Robinson et al. (1991) was accepted (Hoare & Butcher, 2008). The reliability results of all measurement scales are shown in Table (2). Cronbach alpha coefficients for the five dimensions were ideal Cronbach alpha.

Table (2): service quality scores: Cronbach alpha

<table>
<thead>
<tr>
<th>Service Quality</th>
<th>Tangibility</th>
<th>Reliability</th>
<th>Responsiveness</th>
<th>Assurance</th>
<th>Empathy</th>
<th>Service Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>Question</td>
<td>1 - 4</td>
<td>5 - 9</td>
<td>10 - 13</td>
<td>14 - 17</td>
<td>18 - 22</td>
<td>1 - 22</td>
</tr>
<tr>
<td>Cronbach Alpha</td>
<td>0.854</td>
<td>0.724</td>
<td>0.811</td>
<td>0.712</td>
<td>0.703</td>
<td>0.879</td>
</tr>
</tbody>
</table>

A total of 230 questionnaires were distributed to clients of 3 branches of melli bank's IRAN (national bank) in Caspian Sea margin (Mazandaran province). For this study, 207 questionnaires were found to be usable.

A breakdown of the respondent profile shows that 42.5 percent of respondents were females and 57.5 percent of respondents were male, and majority of respondents were below 30 years old (54.4 percent), while a further 33.8 percent were between 31-50 and just 16.6 per cent of respondents were over 51 years.

4- FINDINGS:

4-1- SERVICE QUALITY MEASURE OF BANKS:

Table (3) shows the means, Means for clients’ perceptions by questionnaire item. The data used for calculate weights of dimensions by using Entropy and in Topsis method as the matrix of performance to evaluate the three branches' rank.
Table (3): perceived service quality of customer in branches' national (Melli) bank

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>T2</td>
<td>2.5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>T3</td>
<td>2.5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>T4</td>
<td>2.5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Tangibility</td>
<td>2.5</td>
<td>2.5</td>
<td>3</td>
</tr>
<tr>
<td>Rel 5</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Rel 6</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Rel 7</td>
<td>5</td>
<td>4.5</td>
<td>4</td>
</tr>
<tr>
<td>Rel 8</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Rel 9</td>
<td>4</td>
<td>4.5</td>
<td>5</td>
</tr>
<tr>
<td>Reliability</td>
<td>4</td>
<td>4.5</td>
<td>5</td>
</tr>
<tr>
<td>Res 10</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Res 11</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Res 12</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Res 13</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>A14</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>A15</td>
<td>2</td>
<td>2.5</td>
<td>2</td>
</tr>
<tr>
<td>A16</td>
<td>3</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>A17</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Assurance</td>
<td>2.5</td>
<td>3.25</td>
<td>2.75</td>
</tr>
<tr>
<td>E18</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>E19</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>E20</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>E21</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>E22</td>
<td>2</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Empathy</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

4-2- CALCULATE WEIGHTS OF FIVE DIMENSIONS AND CRITERIA:

The weights of the five dimensions of service quality shows Fig. 1, which are obtained by applying Entropy. The weights for each of the dimensions are: Tangibility (0.196), Reliability (0.199), Responsiveness (0.2), Assurance (0.204), and Empathy (0.201).

The participants in this study have highest weights (or priority) for questionnaire item "10: Staffs at the bank tell you exactly when services will be performed" (0.253) and have lowest weights for two items: the item “7: The bank performs the service right the first time (0.186) and " 9: the bank insists on error-free service (0.186).
Fig. 1: weights of five dimensions and criteria by using Entropy
4-3- RANKING BRANCHES' BANK:

This section applies TOPSIS to rank branches. For this purpose, we were obtaining the matrix of performance to evaluate the three branches' performance by Servqual (table 3) and criteria weight by Entropy (fig.1). From table (4) to table (8) shows six steps of Topsis. As shown, branches final ranking from service quality are A, C, B.

- **Step 1:**

  Table (4); performance matrix

<table>
<thead>
<tr>
<th></th>
<th>T</th>
<th>Rel</th>
<th>Res</th>
<th>A</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2.5</td>
<td>4</td>
<td>3</td>
<td>2.5</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>2.5</td>
<td>4.5</td>
<td>3</td>
<td>3.25</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>2.75</td>
<td>2</td>
</tr>
</tbody>
</table>

  Table (5); normalized

<table>
<thead>
<tr>
<th></th>
<th>T</th>
<th>Rel</th>
<th>Res</th>
<th>A</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.539</td>
<td>0.581</td>
<td>0.577</td>
<td>0.506</td>
<td>0.727</td>
</tr>
<tr>
<td>B</td>
<td>0.539</td>
<td>0.654</td>
<td>0.577</td>
<td>0.658</td>
<td>0.485</td>
</tr>
<tr>
<td>C</td>
<td>0.647</td>
<td>0.727</td>
<td>0.577</td>
<td>0.557</td>
<td>0.485</td>
</tr>
<tr>
<td>w</td>
<td>0.196</td>
<td>0.199</td>
<td>0.2</td>
<td>0.204</td>
<td>0.201</td>
</tr>
</tbody>
</table>

- **Step 2:**

  Table (6); weighted normalized performance matrix

<table>
<thead>
<tr>
<th></th>
<th>T</th>
<th>Rel</th>
<th>Res</th>
<th>A</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.105</td>
<td>0.115</td>
<td>0.115</td>
<td>0.103</td>
<td>0.146</td>
</tr>
<tr>
<td>B</td>
<td>0.105</td>
<td>0.130</td>
<td>0.115</td>
<td>0.134</td>
<td>0.097</td>
</tr>
<tr>
<td>C</td>
<td>0.126</td>
<td>0.144</td>
<td>0.115</td>
<td>0.113</td>
<td>0.097</td>
</tr>
</tbody>
</table>

- **Step 3:** Determine the ideal solution and negative ideal solution

  \[
  A^*_i = \{0.126, 0.144, 0.115, 0.134, 0.146\} \\
  A_i = \{0.105, 0.115, 0.115, 0.103, 0.097\}
  \]
\textbf{Step 4:} \\

Table (7): distance between idea solution and negative ideal solution

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>S'</td>
<td>0.047</td>
<td>0.055</td>
<td>0.053</td>
</tr>
<tr>
<td>S'</td>
<td>0.049</td>
<td>0.034</td>
<td>0.037</td>
</tr>
</tbody>
</table>

\textbf{Step 5-6:} \\

Table (8): Final ranking of instructors

<table>
<thead>
<tr>
<th>Branch</th>
<th>Similarity to ideal solution (C)</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.510</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>0.382</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>0.411</td>
<td>2</td>
</tr>
</tbody>
</table>

Based on five dimensions separately, the final ranking of the branches shown in table (9). Branch A is first rank in three dimension (Reliability, Assurance, Empathy) but in another two dimension (Tangibility, Responsiveness) is branch B. Branch C is second rank in all of dimension.

Table (9): results of ranking bank branches by Topsis

(C = closeness to the ideal solution of each alternative, R = Rank)

<table>
<thead>
<tr>
<th>Branch</th>
<th>Branch A</th>
<th>Branch B</th>
<th>Branch C</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>R</td>
<td>C</td>
<td>R</td>
</tr>
<tr>
<td>Tangibility items (T1 - T4)</td>
<td>0.530</td>
<td>0.708</td>
<td>0.652</td>
</tr>
<tr>
<td>Reliability (Rel 5 - Rel 9)</td>
<td>0.82</td>
<td>0.112</td>
<td>0.589</td>
</tr>
<tr>
<td>Responsiveness (Res 10 - Res 13)</td>
<td>0</td>
<td>1</td>
<td>0.524</td>
</tr>
<tr>
<td>Assurance (A14 - A17)</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Empathy (E18 - E22)</td>
<td>0.705</td>
<td>0</td>
<td>0.297</td>
</tr>
<tr>
<td>Service quality (22 items; 5 dimensions)</td>
<td>0.51</td>
<td>0.382</td>
<td>0.411</td>
</tr>
</tbody>
</table>
5-COCLUSION:

This paper is about ranking banks from viewpoint of customers by MCDM in banking industrial in Iran. In this study, First, we evaluate service quality from viewpoint of customers by SERVPERF, then for calculating the criteria weights we applied Entropy method. Finally, we conduct Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) to achieve the final ranking results.

As that said, questionnaire that applied in this research is performance-only instrument or Servperf model. To test the reliability of the Servperf instrument, we computed Cronbach alpha coefficients that alpha coefficients for the five dimensions were ideal Cronbach alpha (higher than 0.7).

From 207 questionnaires were found to be usable that distributed to clients of 3 branches of melli bank's IRAN (national bank) in Caspian Sea margin, 42.5 percent of respondents were females and 57.5 percent of respondents were male, and majority of respondents were below 30 years old (54.4 percent).

By using Entropy method, we obtained weights of the five dimensions and twenty items of service quality. The weights priorities for each of the dimensions are: Assurance, Empathy, Responsiveness, Reliability, and Tangibility (fig.1). Finally, for ranking branches, Topsis applied that branches final ranking from service quality are equal so as "branch A, branch C, branch B" but based on five dimensions separately, the final ranking of the branches shown in table (9). Branch A is first rank in three dimension (Reliability, Assurance, Empathy) but in another two dimension (Tangibility, Responsiveness) is branch B. Branch C is second rank in all of dimension.

Accurate ranking of banks’ branches is a major concern to management. Whereas current methods that used for ranking in banks aren't accurate, Appling MCDM methods are closer to reality, so, we suggest a three-stage procedure for ranking from viewpoint customer that could use and help for all of service organization that want to rank service organizations, for example: ranking banks, hotels and so on.
H. Vazifedost and M. J. Taghipouryan

REFERENCES


Received: May, 2010