



**Identification and prioritization of factors affecting services provided by Real Estate Registration Organization of Iran using analytical Hierarchy process (AHP) from viewpoint of clients (case study: Real Estate Registration Organization of Bandar Abbas)**

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**Identification and prioritization of factors affecting services provided by Real Estate Registration Organization of Iran using analytical Hierarchy process (AHP) from viewpoint of clients (case study: Real Estate Registration Organization of Bandar Abbas)**

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**ABSTRACT**

One of the orientations of modern management is consideration of principle of customer-orientation and gaining satisfaction of recipients of services. In the executive and administrative system of Iran, satisfaction of people by the services provided by public systems could be considered as one of the main indices of measurement of efficiency, growth and development of system. In addition to satisfy people in field of receiving services from public systems, these factors can increase public trust, which could be the greatest capital and support for the administrative system. In this study, the author has tried to identify and then prioritize the factors affecting improvement of services provided by Real Estate Registration Organization of Iran using AHP method. Case study in this study is conducted on the Real Estate Registration Organization of Bandar Abbas. This study is an applied study and the data collection method is descriptive survey method. Data collection in this study is done in two main steps. The first step is associated with collection of opinions of experts and the clients about the weight of criteria using AHP questionnaire and the second step is associated with collection of the opinions of clients about the services provided by the Real Estate Registration Organization compared to criteria. In this study, purposive sampling method is used. The clients with degree higher than diploma with the ability to answer the Fuzzy AHP questionnaire were selected as sample individuals and the questionnaires were distributed among them. Due to the difficulty of fulfilling the



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questionnaire and the time limitation, 100 clients were selected as final sample size and the questionnaires were distributed among them. The questionnaire contains evaluation and prioritization of the criteria extracted using AHP questionnaire. 61 questionnaires out of these questionnaires were applicable and analyzable. To solve the proposed model, Excel software is used. In first step, through analysis of the determinant factors of quality of services in the literature of last 30 years, the common and applicable factors with highest consistency with public centers were identified and were localized through survey of organizational experts and the factors in consistence with the Registration Organization were selected. Among the criteria, 6 criteria with highest frequency including physical dimension (tangibles), reliability, accountability, confidence, quick services (optimized) and ease of access (sympathy) were selected. In next step, the significance and weight of criteria is determined. To this end, Fussy AHP method is used. The ranks of criteria including quality of services provided by real Estate Registration Organization of Bandar Abbas in this study are as follows: rank 1: accountability (0.19); rank 2: reliability (0.185); rank 3: quick services (Optimized) (0.184); rank 4: ease of access (sympathy) (0.17); rank 5: confidence (0.16) and rank 6: physical dimension (0.111)

**Key words:** quality of services, Analytical Hierarchy Process (AHP), Fuzzy Approach, public sector, Real Estate Registration Organization



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## **1. INTRODUCTION**

Over the 2 decades, deformation of management has led to change in policy of public organizations from introversion to extroversion. This issue has made citizens be placed in heart of service systems (Chen, Yu and Chang, 2006). In the administrative and executive system of Iran, satisfaction of people by services provided by public systems could be considered as one of the main indices for measurement of efficiency, growth and development of the system. Gaining public satisfaction in field of getting services of public systems can increase public trust, which can be the greatest capital and support for administrative system. Enhancement of quality of services could be the most important step taken to increase satisfaction of citizens. Hence, quality of services can be an important factor to satisfy the clients and customers, which can affect profitability, market share, efficiency, return on investment and reduction of costs significantly (Kuo, Chou, & Sun, 2011).

## **2. PROBLEM STATEMENT**

At the today's competitive world, providing quality of services can be the key for lots of successes. Majority of experts believe that the most powerful competitive stream in formation of commercial and marketing strategy is quality of services (Nejati and Nejati, 2008; Abdullah, 2005). In fact, at the current competitive markets, more than half of educational expenses are being spent on the issue of quality of services (Babakus, Bienstock, & Van Scotter, 2004). Quality of services is an important factor to satisfy the customers and could affect profitability, efficiency, market share, return on investment and reduction of costs (Kuo, Chou and Sun, 2011). As quality of services encompasses both qualitative and quantitative dimensions and also covers all interactions of supply chain from the supplier to the consumer, it has wide range (Seth, Deshmukh, & Vrat, 2006). On the other hand, quality of services is always under uncertainties and under significant effect of ambiguous and unclear judgments (Tzang, 2009). Studying quality of services in public sector may face more complications. This



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is because; the ideas of citizens on public services could be mainly focused on explicit and premature outcomes and they pay no attention to future and long-term outcomes. Therefore, majority of judgments based on the model may lack the required reliability and validity (Baratloo, 2006). Public organizations face many problems in this field because of their responsibility to provide various services for various customers and meeting their conflicting expectations. Hence, public services have complicated nature (Sarraf, 2004). Undoubtedly, one of the axes of sustainable development is the Real Estate Registration. Just distribution of revenue, employment, public participation, pluralism, integration and ecosystem could be the issues, in which the Real Estate Registration Organization is involved in special way to enhance or decline them (Amiri, 2006). Providing services and interactions in cyber space is being developed through taking benefit of ICT facilities and the competition on providing more services for the clients among executive systems has been increased significantly. In this regard, the Real Estate Registration Organization of Iran as one of the largest governance institutes for supplying services for people with the responsibility of crediting and proving the right to legitimate and legal ownership of individuals is not an exception. Providing 20million registration services by different departments of the organization during a year shows the significance of this issue (Sadr Noori, 2011). Nowadays, the Real Estate Registration Organization of Iran is supplying various services to people in 3 fields of registration of documents, registration of real estate and registration of companies in frame of 400 executive processes. The Registration Law, in field of taking its responsibilities and to realize its goals and missions, follows two main targets as follows: 1) identifying ownership of owners and 2) crediting and validating transactions. In fact, this is same mission or target of Registration Law. In other words, it could be mentioned that registering the ownership of owners or entities and validating the transactions, contracts and higher rights, regulating legal and social relations (marriage and divorce) to prevent disputes and presenting the lawsuits or facilitating the handling of lawsuits in courts to realize the abovementioned goals has led to formation of various legal articles helping the organization in way of achieving its targets (Amiri, 2006). In general, no organization could achieve sustainable development and



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codification of strategic goals without continuous evaluation and regardless of weaknesses and strengths, threats and opportunities. The Real estate Registration Organization of Bandar Abbas is one of the registry branches affiliated to Office of Registration of Documents and Real Estate of Hormozgan Province with the responsibility of providing all registration services in geographical zone of Bandar Abbas. Hence, in this study, the factors affecting improvement of quality of services provided by this organization are identified and prioritized in view of clients using FAHP method.

### **3. SIGNIFICANCE OF RESEARCH**

Today, quality of services and customer satisfaction are strategic issues for service organizations. At the current competitive world, providing high quality services is a necessity for the organizations. Through measurement of quality of services, the weaknesses and strengths of providing services could be identified and the plans could be made to improve the quality and enhance customer satisfaction on this basis (Damizadeh, 2012). Studied conducted over the two decades in field of the causes of success of successful companies and institutes across the world show that quality and customer expectations from services within the organizations could be considered as a strategic issue and all activities of the organization could be matched to meet the expectations. In this regard, services are more complicated than products and commodities. Hence, the issue of quality of services is also as complicated as the nature of services. When talking of quality of product, technical information and durability of products comes to mind immediately. However, the quality of services and quality of product are as different as nature of services and products.

Special features of services are as follows (Othman & Owen, 2002):

- Intangible: they can't be touched, seen, heard or smelled before purchasing
- Simultaneity: majority of services are produced right at the moment of using them. It means that services are at the first sold and then produced and consumed simultaneously.
- Heterogeneity: quality of a service is depended on the supplier or service, the recipient, time and place and the way of supplying service.



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- Human contact: the requirement for transferring the service is at the first making contact and interaction between the employee and client and then, the service could be supplied.

Different scholars have classified criteria of quality of services in different ways. In this regard, Parasuraman et al have classified the criteria and features of quality of services in 5 groups. They believed that using these 5 dimensions, the perception of customers on each kind of service could be measured. The 5 dimensions include:

- Tangibles: physical facilities, equipment and physical adornment of employees
- Reliability: ability to supply promised services in careful way
- Responsiveness: interest in helping and providing facilities to respond the orders of customers
- Assurance: polite behavior and knowledge of employees and their ability to gain trust and being honest
- Empathy: specific attention paid by company to customers (Parasuraman, 1988)

Successful organizations in field of services have found out that without consideration of quality, they can't pave the way to satisfy customers and encourage their loyalty. Particularly, over the decades with the slogan of "Customer is Rightful Always" for majority of companies, this issue has been highlighted (Munesi Toosi, 2010).

For customers, quality of services has been always the most important factor for referring to a service unit. Therefore, those organizations could be successful, which guarantee the quality for their customers. As use of services of public and governance companies such as Real Estate Registration Organization are binding for clients and with no right to choice, these organizations should be focused on quality of services, so that their quality is not declined over the time. However, it should be mentioned that evaluation of quality of services for both client and organizations is more difficult than evaluation of quality of products and this is caused by special features of services (Chen et al, 2000). Accordingly, the significance of this research to identify and prioritize the factors affecting improvement of services and the ways of achieving to solutions to



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improve quality of services using Fuzzy AHP could be proved. This is because; this study can show that what is the relationship between factors affecting improvement of services and the services supplied by the organization and if there is a relationship; how the organization can provide the best services for the clients to satisfy them and to provide job satisfaction for the employees and to enhance the work efficiency? In this study, the author has tried to identify and prioritize the factors affecting improvement of quality of services of Real Estate Registration Organization of Iran using FAHP method.

#### **4. RESEARCH OBJECTIVES**

Although high quality of products and services in world level has special position in different departments of manufacturing and services, the two issues and especially quality of services are not so known and recognized in Iran. Although the situation of quality of products is not bad, quality of services is considered in restricted way or is not recognized at all. Despite to increasing focus of client on quality of services and respecting client, it could be found through review of literature that there are a few studied in this field. In this study, in addition to identify the factors affecting improvement of quality of services of Real Estate Registration Organization of Iran using FAHP to fill this gap, the study has tried to use fuzzy decision making methods to prioritize these factors. In field of prioritization of these factors using fuzzy decision making methods, no study is conducted so far.

#### **5. MAIN OBJECTIVE**

In terms of objective, this study is an applied study and data collection method is descriptive survey or field method. The main objective of this study is to identify and prioritize the factors affecting improvement of quality of services of Real Estate Registration Organization of Iran in view of clients. The case study in this research is the Real Estate Registration Organization of Bandar Abbas City.

In the first step, the Office of Real Estate Registration Organization generally and the Real Estate Registration Organization of Bandar Abbas specially are the most important utilizers of this study and in next step, the clients of the organization could take benefit of this study.



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## **6. SECONDARY OBJECTIVES**

7. Determining priority and significance of each factor
8. Providing solutions to improve quality of services of Real Estate Registration Organization of Iran

## **7. RESEARCH QUESTIONS**

- 1- What are the factors affecting quality of services in Real Estate Registration Organization of Iran?
- 2- What is the weight and significance of each factor?

## **8. RESEARCH HYPOTHESES**

As this study is an exploratory research, this study needs no hypothesis.

## **9. RESEARCH SCOPE**

The time scope of this study is 24 months from November of 2011 to Feb of 2016 and the information in this study include preliminary information, interview with scholars and extracting components of quality of services, survey and analysis of the data. Moreover, the area of research is the Real Estate Registration Organization of Bandar Abbas, Iran.

## **10. STATISTICAL POPULATION**

Statistical population in this study consists of clients of Real estate Registration Organization of Bandar Abbas City.

## **11. METHODOLOGY**

Despite to increasing consideration of quality of services and respecting clients, it could be found through review of relevant literature that there are a few studies in this field. In this study, in addition to identify the factors affecting improvement of quality of services of Real Estate Registration Organization of Iran using FAHP method to fill the existing gap, fuzzy decision making methods are used to prioritize these factors and there is also no relevant study in field of prioritization of these factor using fuzzy decision making methods. As data collection method in each study is determined based





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on the research type and nature, the method applied in this research is descriptive-survey method and the data collection is mainly done using field information. Moreover, for better coverage of literature, library method and questionnaire is used. In this study, to analyze the demographic information, descriptive statistics are used and multicriteria decision making methods are also used for purpose of data analysis. The technique used in this research is Fuzzy AHP method. FAHP method is one of the most popular multipurpose decision making techniques. This method could be used in cases that decision making is encountered several rival options and decision making criteria. The presented criteria could be qualitative or quantitative. Decision making using AHP is started with formation of decision tree. The level 1 of the tree is target and the last level is rival options. The middle levels include factors. The number of levels and layers is depended on the studied issue. After formation of decision tree, a series of paired comparisons is taken. The comparisons could weight each factor in regard with rivals. Finally, the AHP logic integrates the matrixes caused by paired comparisons in such way that the decision could be made. Due to difficulty of understanding complicated issues for human mind, analysis of a big problem to partial elements could help human understanding. If the correlation of each element with other elements is specified in frame of a layered structure in different levels and the correlation of main objective is provided with the lower layers of the hierarchy, decision making could be done with more accuracy and facility and AHP can do this exactly. As this study has tested a new method using academic references and the information provided by public opinion, it is an applied research in terms of objective. Applied research tends to achieve an academic target and emphasizes providing happiness and welfare of ordinary people. This study could be considered a descriptive survey research, since the author tends to analyze the existing status and tends to describe the realities and features of a phenomenon or certain population carefully.

## **1. BASIC CONCEPTS OF QUALITY OF SERVICES**

### **Definition of services**

Service is a complicated term. This word has various meanings and encompasses a range from personal services to service as a product. This term even encompasses wider



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range. If the seller of a car or any other product tries to provide solution to meet the needs of customers, it could be considered as service for customers. Car is a physical product; although the behavior with customer is a service. Because of such complexity, wide range of definitions was provided for service during 1960-1980. Although fewer discussions were provided in this field in later years, no comprehensive definition was provided for that. With such description of service, it could be mentioned that service is a process including a series of more and less intangible activities happened naturally but not necessarily constantly in the interactions of customers and employees or physical resources or products or systems providing services to be a solution for the problems of customers (Gronross, 2007).

On the other hand, in relevant works of marketing, for better understanding of the term "service", services are usually compared with physical products. Table 1 has presented some features of products and services in summary.

**Table 1: features of products and services (Gronross, 2007)**

Physical products	Services
Tangible	Intangible
Coherent	Incoherent
Separation of production and distribution from consumption	Simultaneity of production, distribution and consumption processes
Production of core value in factory	Production of core value in buyer-seller interactions
Lack of participation of customers in production process	Participation of customers in production process
Possibility of storage	Impossibility of storage
Ownership Assignment	Lack of ownership assignment

Services have some features differentiating them from products and commodities. These features are mostly presented as intangibility, inseparability, and mortality and inability to assign ownership on service:

- a) **Intangibility:** services are basically intangible. It means that they can't be seen, touched, heard or smelled before buying them (Esmailpoor, 2005). Intangibility



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can increase the unreliability of consumer while selecting the competing services. In table 2, outcomes of intangible nature of services are provided:

**Table 2: some outcomes of intangibility of services**

Intangibility of services	
↓	
Outcome for customer	
1-	Have problem in evaluation of competing services
2-	Perceiving high risk level
3-	High emphasis on personal information source
4-	Using price as a basis for evaluation of quality
↓	
causing reaction of management to:	
1-	Reduce complexity of service
2-	Emphasizing tangible cases
3-	Facilitating word of mouth advertising
4-	Emphasizing quality of services

b) **Inseparability:** tangible products are stored after production and are then sold and they may be consumed after a while. In regard with services, the situation is different. Services are firstly sold, then are produced and are consumed simultaneously. Hence, service is inseparable from its supplier, regardless of this issue that its supplier is a man or machine. If the supplier of service is a person, the person can be a part of service. As customer is usually present during the production of service, a kind of interaction is created between the supplier and customer as a special form of marketing and as a result; both supplier and the customer can affect the outcome of service (Esmailpoor, 2005).

c) **Variability:** quality of services is highly variable and changeable. It means that quality of a service is depended on the supplier and time and place and the manner of supplying service. For example, some hotels have good credit and popularity in terms of quality of services and various behaviors of employees could be also observed at the



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hotel. Even quality of providing service by an employee can be different depending on the mood of that person (Kotler and Armstrong, 2010).

d) **Mortality:** services are mortal. It means that services could not be stored for the next consumption. If a person misses a flight, the person can't claim that as he/she has not used the airplane, he/she has right to give the cash back, but also that money has been just belonged to that special flight and has been destroyed after that. When the demand is uniform, mortality of services makes no problem; although service institutes encounter a problem when the demand for their services is fluctuated. For example, bus driving companies may need more buses during the day and they could be free from such problems if the demand for urban transportation services was uniform during the day (Esmailpoor, 2005).

e) **Ownership:** another difference between products and services is the reality that customers usually gain just the value of services without gaining permanent ownership of something. Inability to own the services is associated with intangibility and mortality. In regard with purchasing products, the buyers mainly obtain the ownership of product and so what they want with that product. However, when a service is provided, no ownership is assigned from the seller to buyer. Here, the buyer purchases just the right to servicing process (e.g. using parking lot or legal consultation appointment) (Palmer, 2001).

## **2. FACTORS FORMING QUALITY OF SERVICES**

The scholars have identified the factors affecting quality of services in their studies to evaluate the quality. Some of these factors in all studied have high significance. For example, reliability is a factor, which is highlighted in all studies. In table 3, some studies have been analyzed.

**Table 3: factors forming quality of services in previous works**

Liang and Kuo (2011)	Agus et al (2007)	Zhu and Wymer (2002)	Gronross (2000)	Caruana and Pitt (1997)	Cronin and Taylor (1992)	Parasurama n et al (1985)	Sullivan (1982)
Reliability	Reliability	Reliability	Reliability	Reliability	Reliability	Reliability	Accuracy



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	Accountability	Accountability	Competency	Accountability	Accountability	Accountability	Accountability
Time	Quick service				Quick service	Quick service	Quick service
		No error	No error	No error		No error	No error
Employee Behavior	Employee Behavior	Usefulness	Behavior	Employee behavior	Sympathy	Modesty	Excitement
		Knowledge			Communication	Communication	
		Reliability	Credit		Honesty	Reliability	
Security		Security	Security		Secrecy	Security	
			Compensation	Acceptability	Handling Complaints	customer perception	
Beauty	Beauty			Beauty	Physical Facilities	Tangible Factors	Environment
Technology		Technology				Technology	Technology

### FOREIGN RESEARCHES

Büyükoçkan et al (2011) have used Fuzzy Analytic Hierarchy Process (AHP) for strategic analysis of quality of services. In this method, 4 hospitals are measured in terms of criteria of quality of services; although no suggestion is provided for the hospital with weaker performance than others. In other words, the proposed model has not specified the weak criteria of each hospital to improve qualitative status.

Liu et al (2010) have used VIKOR method to improve quality of services provided by domestic airports. In this study, the criteria of each airport are evaluated properly compared to performance and expectations of customers; although lots of important criteria highlighted by many studies have been ignored. Security and reliability of services have high value for all service industries such as airports. Sympathy and behavior of employees, physical status of service center and several other underlying criteria are neglected in this study.



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Benitez et al (2007) have used Fuzzy TOPSIS method to evaluate the quality of services. The case study included 3 chain hotels in Gran Canaria Island in 2002. In the study, 13 criteria are used to evaluate quality of services. In this study, analysis of quality of services is done under different conditions (seasons). Hence, perceiving quality of services in view of decision makers may be deviated, since the quality of services may be changed in different seasons on behalf of suppliers of services due to number of customers. This method has the ability to evaluate the quality of services of hotels with high efficiency; although it has not required efficiency to improve quality of services, since it can't identify the weak criteria for each hotel (Benitez, Martin and Roman, 2007).

Badri (2001) has provided combined model of AHP-GP to evaluate the systems of controlling quality of services. In this study, the results of relevant literature are used to identify the criteria of quality of services. This method can provide an instrument to measure quality of services with regard to constraints of the real world.

#### **DOMESTIC RESEARCHES**

Ghasemzadeh Alishahi et al (2016) have studied the status of quality of educational services based on SERVQUAL model in view of students of Tabriz University of Medica Sciences. The results obtained from the study showed positive evaluation of students for physical dimensions, accountability, reliability and sympathy. The results also showed that quality in all 5 dimensions of educational services is higher than the average level. The min and max average is respectively observed for accountability and reliability.

Ruhbakhsh et al (2015) has combined techniques of quality performance development, AHP and fuzzy theory for ranking and has finally evaluated and ranked 7 criteria and 18 sub-criteria. The most important advantage of this integrated approach compared to some relevant studies in this field is that desired criteria of the organization are associated with this issue with regard to the weight of those units. The results obtained from this study could be applied by managers in industrial environments and factories with tendency to have a fundamental and logical choice among the existing options of suppliers.



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Saeidi, Husseini and Farzam (2015) have conducted a study to determine the relationship of quality of services with customer satisfaction and loyalty among customers of Clubs for Women in Mazandaran Province. This study has been a descriptive-survey research and the data collection is done using standard questionnaires of quality of services and satisfaction and loyalty. According to the results obtained from this study, quality of services plays key role in satisfaction and loyalty of customers of clubs for women in Mazandaran province.

Rezaei malek et al (2014) has studied the effect of customer knowledge management and mobile banking on improvement of banking service management and increasing customer loyalty. According to the results obtained from testing hypotheses and significant correlation of loyalty with customer knowledge management and mobile banking, the suggestions are as follows: to enhance customer loyalty and supply expected services for customers, items such as identification of basic needs of customer and valuating them, identification of key customers and gaining their trust for long-term investments. Moreover, banks should be careful to select the mobile banking systems to improve banking service management and increase customer loyalty.

Ebrahimi (2010) has conducted a study in City of Bukan and has evaluated the quality of municipality services using comparing expectations of citizens and municipality employees from the status of providing services and comparative study of their attitudes. The author has used SERVQUAL instrument to evaluate quality of municipality services of Bukan and has made nothing new in the research.

#### **DETERMINING SAMPLE SIZE AND SAMPLING METHOD**

Sample is a set of elements forming a part of population and sampling refers to selection of a percentage of a population as representative of that population. As studying all members of population is time and cost consuming, the authors have to take measure for sampling. In this study, purposive sampling method is used. People with degree higher than diploma with the ability to answer the items of AHP questionnaire were selected and the questionnaires were distributed among them. Due to difficulty of fulfilling the questionnaire and the available time, 100 people were selected as final sample size and the questionnaires were distributed among them. The questionnaire is associated with



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evaluation of the criteria extracted using AHP questionnaire. 61 out of 100 questionnaires were acceptable and analyzable and were collected. To solve the proposed model, Excel software is used.

### **VALIDITY OF QUESTIONNAIRE**

The process of testing validity of questionnaire is done in 2 steps. In first step, through review of literature, the main factors are identified and in second step, using ideas of experts and due to conditions, the desired population is localized. The inconsistency ratio is required for validation of AHP method (Ozdemir, 2005). As the proposed model uses AHP method, to measure validity, the inconsistency ratio is measured. According to findings of Saaty (1997), the ratio should be lower than 0.1 (Saaty, 1997).

### **EXTENT ANALYSIS METHOD OF CHANG<sup>1</sup>**

Chang (1992) presented very simple method to extend the hierarchical process to fuzzy space. The method developed based on arithmetic average of opinions of experts and Saaty normalized method and using Fuzzy triangular numbers was welcomed by the scholars. The steps of taking this method are as follows:

Step 1: drawing hierarchy tree: in this step, hierarchical structure of decision tree is drawn using target, criterion and option levels.

Step 2: formation of paired comparison matrix: using decision maker idea, the comparison matrix is formed using triangular fuzzy numbers  $\tilde{x}_{ij} = (a_{ij}, b_{ij}, c_{ij})$  based on ideas of several decision makers.

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<sup>1</sup> Chang, D.Y. (1992), Extent Analysis and Synthetic Decision, Optimization Techniques and Applications, World Scientific, Singapore, 1: 352.





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$$\tilde{A} = \begin{bmatrix} (1,1,1) & \begin{pmatrix} \tilde{a}_{121} \\ \tilde{a}_{122} \\ \vdots \\ \tilde{a}_{12P_{12}} \end{pmatrix} & \dots & \dots & \begin{pmatrix} \tilde{a}_{1n1} \\ \tilde{a}_{1n2} \\ \vdots \\ \tilde{a}_{1nP_{1n}} \end{pmatrix} \\ \begin{pmatrix} \tilde{a}_{211} \\ \tilde{a}_{212} \\ \vdots \\ \tilde{a}_{21P_{21}} \end{pmatrix} & (1,1,1) & \dots & \dots & \begin{pmatrix} \tilde{a}_{2n1} \\ \tilde{a}_{2n2} \\ \vdots \\ \tilde{a}_{2nP_{2n}} \end{pmatrix} \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ \begin{pmatrix} \tilde{a}_{n11} \\ \tilde{a}_{n12} \\ \vdots \\ \tilde{a}_{n1P_{n1}} \end{pmatrix} & \begin{pmatrix} \tilde{a}_{n21} \\ \tilde{a}_{n22} \\ \vdots \\ \tilde{a}_{n2P_{n2}} \end{pmatrix} & \dots & \dots & (1,1,1) \end{bmatrix}$$

Fuzzy judgment matrix: in this matrix,  $P_{ij}$  refers to number of people leaving comment on priority of item  $i$  compared to  $j$ .

Step 3: lack of existence of any kind of error in taking services such as error associated with personnel and communicative networks; arithmetic average of ideas: the arithmetic average of decision makers is calculated as follows:

$$\bar{A} = \begin{bmatrix} (1, 1, 1) & \tilde{a}_{12} & \tilde{a}_{1n} \\ \tilde{a}_{21} & (1, 1, 1) & \tilde{a}_{2n} \\ \vdots & \vdots & \vdots \\ \tilde{a}_{n1} & \tilde{a}_{n2} & (1, 1, 1) \end{bmatrix}$$

Arithmetic average of ideas of decision makers:

$$\tilde{a}_{ij} = \frac{\sum_{k=1}^{P_{ij}} a_{ijk}}{P_{ij}} \quad i, j = 1, 2, \dots, n \quad (1)$$



Step 4: using latest innovations including turning devices and file tracking system and taking registration processes through Real Estate System; calculation of row elements: estimate summation of elements of rows:

$$\tilde{s}_i = \sum_{j=1}^n \tilde{a}_{ij} \quad i = 1, 2, \dots, n \quad (2)$$

Step 5: normalization: normalize summation of rows as follows:

$$\bar{M}_i = \tilde{s}_i \otimes \left[ \sum_{i=1}^n \tilde{s}_i \right]^{-1} \quad i = 1, 2, \dots, n \quad (3)$$

If  $\tilde{s}_i$  is shown as  $(l_i, m_i, u_i)$ , the above presented equations are estimated as follows:

$$\bar{M}_i = \left( \frac{l_i}{\sum_{i=1}^n u_i}, \frac{m_i}{\sum_{i=1}^n m_i}, \frac{u_i}{\sum_{i=1}^n l_i} \right) \quad (4)$$

Step 6: determining degree of probability of to be higher: degree of probability of higher level of each  $\mu_i$  compared to other  $\mu_j$ s has been estimated and is called  $d^i$  ( $A_i$ )

The degree of probability of higher level of fuzzy triangular number  $\mu_2 = (l_2, m_2, u_2)$  compared to triangular number  $\mu_1 = (l_1, m_1, u_1)$  is equal to:

$$V(M_2 > M_1) = \text{Sub}_{y \geq x} \left[ \min \left( \mu_{M_1}(x), \mu_{M_2}(y) \right) \right] \quad (5)$$

The equation could be also expressed as follows:

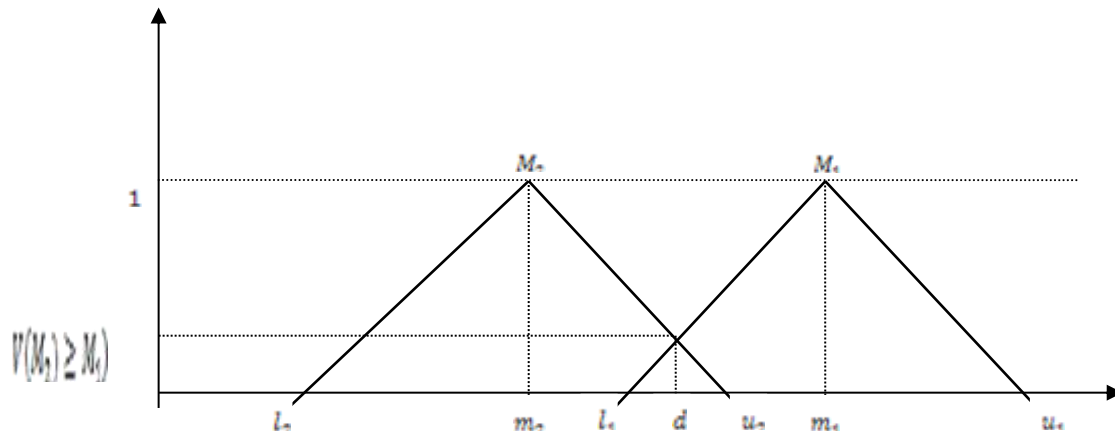
$$V(M_2 \geq M_1) = \text{hgt}(M_2 \cap M_1) = \mu_{M_2}(d) = \begin{cases} 1 & \text{if } m_2 \geq m_1 \\ 0 & \text{if } l_2 \geq u_1 \\ \frac{l_1 - u_2}{(m_2 - u_2) - (m_1 - l_1)} & \text{otherwise} \end{cases} \quad (6)$$



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Where;  $d$  is the coordinates of highest point in common point and the cross point of two membership functions of  $\mu_{M1}$  and  $\mu_{M2}$ .



Priority of two fuzzy triangular numbers: to compare  $M_1$  and  $M_2$ , it is necessary to estimate both values of  $V(M_2 \geq M_1)$  ,  $V(M_1 \geq M_2)$  . The degree of probability of higher level of a Convex fuzzy number ( $M$ ) from  $K$  value of another Convex fuzzy number ( $M_i ; i = 1,2,\dots,k$ ) is separated as follows:

$$V(M \geq M_1, M_2, \dots, M_k) = V[(M \geq M_1) , (M \geq M_2) , \dots , (M \geq M_k)] = d'(M)$$

$$i = 1,2,\dots,k \quad = \min V(M \geq M_i)$$

Step 7: normalization: through normalizing the vector of weights, normalized weights are obtained:

$$w = \left[ \frac{d'(A_1)}{\sum_{i=1}^n d'(A_i)} , \frac{d'(A_2)}{\sum_{i=1}^n d'(A_i)} , \dots , \frac{d'(A_n)}{\sum_{i=1}^n d'(A_i)} \right]^T \quad (8)$$

The above presented weights are certain weights (non-fuzzy). Through repetition of this process, weights of all matrixes can be obtained. Through taking these calculations, the results could be as follows:



Step 8: combination of weights: through combining weights of options and criteria, final weights could be obtained:

$$\bar{U}_i = \sum_{j=1}^n \tilde{w}_i \tilde{r}_{ij} \quad \forall i \quad (9)$$

### CONSISTENCY TESTING METHOD OF GOOGOOS AND BOUCHER

Googooos and Boucher (1998) suggested that to test the consistency, two matrixes (middle number and limit of fuzzy number) are derived from each fuzzy matrix and then, the consistency of each matrix is estimated based on Saaty method. The steps of estimating consistency ratio of fuzzy matrixes of paired comparisons are as follows: Step of providing service in shortest time possible by personnel and no need to another referral by clients: in first step, fuzzy triangular matrix is divided to two matrixes. The first matrix is formed of middle numbers of triangular judgments  $A^m = [a_{ijm}]$  and the second matrix includes geometric average of max and min levels of triangular numbers  $A^g = \sqrt{a_{iju} \cdot a_{ijl}}$ .

The step of transparency of the procedure for clients: estimate the weighting vector of each matrix using saaty method as follows:

$$w_i^m = \frac{1}{n} \frac{\sum_{j=1}^n a_{ijm}}{\sum_{i=1}^n a_{ijm}}$$

Where;  $w^m = [w_i^m]$  refers to equation of providing services by personnel in shortest time possible and no need to another referral of clients:

$$w_i^g = \frac{1}{n} \frac{\sum_{j=1}^n \sqrt{a_{iju} \cdot a_{ijl}}}{\sum_{i=1}^n \sqrt{a_{iju} \cdot a_{ijl}}}$$

Where;  $w^g = [w_i^g]$  refers to equation of transparency of the procedure for clients.



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Step of lack of existence of any kind of mistake in supplying services such as personnel mistake and communicative network errors: the highest special value for each matrix is estimated as follows:

$$\lambda_{\max}^m = \frac{1}{n} \sum_{i=1}^n \sum_{j=1}^n a_{ijm} \left( \frac{w_j^m}{w_i^m} \right)$$

referring to equation of lack of existence of any kind of mistake in supplying services such as mistakes of personnel and communicative networks:

$$\lambda_{\max}^g = \frac{1}{n} \sum_{i=1}^n \sum_{j=1}^n \sqrt{a_{iju} \cdot a_{ijl}} \left( \frac{w_j^g}{w_i^g} \right)$$

referring to equation of using latest innovations including turning devices and file tracking system and taking registration processes through Real Estate System and so on.

The step of using latest innovations including turning devices and file tracking system and taking registration processes through Real Estate System. Estimate consistency ratio as follows:

$$CI^m = \frac{(\lambda_{\max}^m - n)}{(n-1)} \tag{5}$$

$$CI^g = \frac{(\lambda_{\max}^g - n)}{(n-1)} \tag{6}$$

Step 5: to estimate consistency ratio (CR), CI index is divided to random index (RI) value. If the obtained value is lower than 0.1, matrix is consistent and usable. Saaty formed 100 matrixes wit random numbers and with the condition of consistency of matrixes and estimated the inconsistency ratios and their average to obtain values of random indices (RI). However, as numerical values of fuzzy comparisons are not always integers and they could be changed into non-integers by geometric average, the table of random indices (RI) could not be even used in case of using (1-9) Saaty scale. Therefore, Goo Goos and Boucher enhanced electronic services with high quality to reduce in person referral to Registration Organization with 100 random matrixes and reproduced Random Indices (RI) table (table 4) for the fuzzy paired comparison matrixes.



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**Table 4: random indices (RI)**

Matric size	$RI^m$	$RI^s$
1	0	0
2	0	0
3	0.4890	0.1796
4	0.7937	0.2627
5	1.0720	0.3597
6	1.1996	0.3818
7	1.2874	0.4090
8	1.3410	0.4164
9	1.3793	0.4348
10	1.4095	0.4455
11	1.4181	0.4536
12	1.4462	0.4776
13	1.4555	0.4691
14	1.4913	0.4804
15	1.4986	0.4880

To produce random matrixes, at the first, the middle number of triangular fuzzy number is produced randomly in range  $[\frac{1}{9}, 9]$  interactively. Then, the min level of each

triangular number is produced randomly in range  $[\text{middle value produced and } \frac{1}{9}]$  and

its max level is produced in range  $[\frac{1}{9}$  and middle value produced] and finally; through

dividing random matrix to two matrixes of middle point and geometric average of min and max levels, the random index (RI) value is obtained. It should be noted that the

inconsistency ratio in column  $RI^m$  is more than column  $RI^s$ . The difference is

because; the range of random numbers produced for middle level is  $[\frac{1}{9}, 9]$ ; although the



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range of random numbers of max and min levels based on middle number produced is limited and hence, there is lower probability for their inconsistency.

Through estimating consistency ratio for two matrixes based on following equations, they are compared with threshold of supplying services in shortest time possible by personnel and no need to another referral of clients:

$$CR^g = \frac{CI^g}{RI^g} \quad (7)$$

$$CR^m = \frac{CI^m}{RI^m} \quad (8)$$

If both of these indices are lower than 0.1, the fuzzy matrix is consistent. If both of them are higher than 0.1, the decision maker is asked to revise the priorities and if just

$CR^m$  ( $CR^g$ ) was higher than 0.1, the decision maker takes a revise in limits of fuzzy judgments.

$W'$  and obtaining normalized vector of  $W$ .

$$W = (d(A_1), d(A_2), \dots, d(A_n))$$

### **THE DIAGRAM OF RESEARCH PROCESS**

Data collection in this study is done in two main steps. The first step is associated with collection of opinions of experts on weight of criteria using AHP questionnaire and second step is associated with collection of opinions of clients on quality of services provided by Real Estate Registration Organization of Bandar Abbas compared to the criteria. The details of this study are as follows:

After literature review and identification of indices of quality of services, consistent indices of the Real Estate Registration Organization are screened. The problem of selecting criteria is one of the most important problems for the suppliers of services. Moreover, the criteria have mostly independent and dependent features and mutual dependence at the same time. Different performance of criteria is mostly along with infinite, uncertain, ambiguous and fuzzy data and the sample data mostly don't follow



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normal distribution. Hence, selecting criteria of quality of services in real time is hard to do.

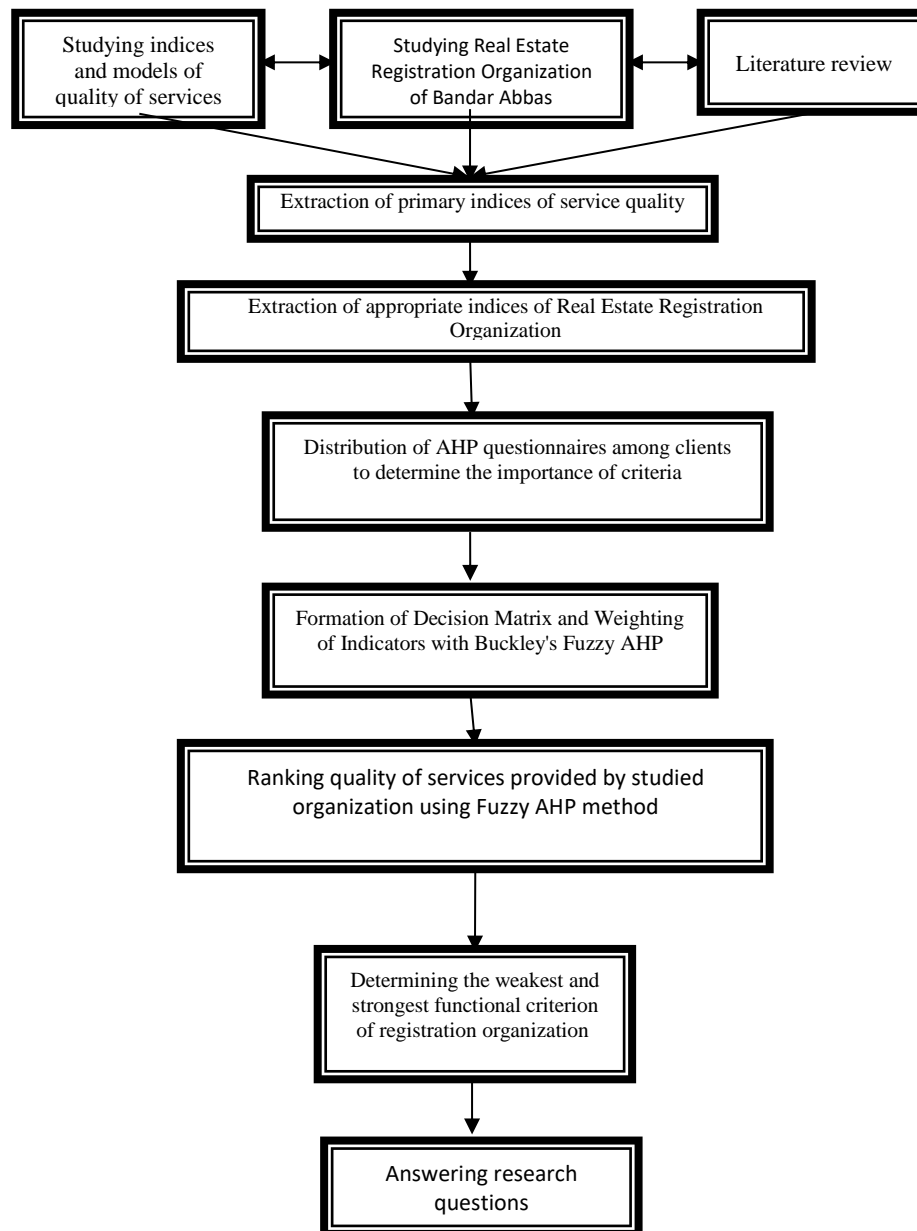
The next step is associated with weighting indices. To this end, Buckley's fuzzy AHP method is used. Before improving quality of services, the decision makers should perceive the relations of quality of services, customer satisfaction and their measurement (Olorunniwo, Hsu, & Udo, 2006). Moreover, understanding the quality of services doesn't need experiencing service environments or suppliers of services (Oliver, 1993; Cronin and Steven, 1994). Hence, to obtain functional values of the Real Estate Registration Organization of Bandar Abbas, the ideas of experts are used. The experts could express their ideas using linguistic variables. A linguistic variable is a variable with values of lingual words. After this step, these words are changed into triangular fuzzy numbers. After formation of decision matrix, fuzzy decision making matrix, fuzzy decision making method is used to rank the Real Estate Registration Organization of Bandar Abbas. This method is not only an evaluation method, but also it is a method to enhance level of quality of services. To enhance quality of services of the studied organization, this method can specify the weakest and strongest functional criterion. Figure 1 shows the research plan.





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**Figure 1: research plan**



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**Identification of criteria adjusted with quality of services**

In traditional methods, the criteria used to be considered as independent components; although in real time, to evaluate the quality of services, the criteria are in such wide range that it is hard to determine their dependence or independence. Through analysis of determinant factors of quality of services in the studies of 30 past years to the date, common and applicable factors with more consistency with public centers have been identified. For purpose of localization of these factors in the Real Estate Registration Organization of Bandar Abbas, these factors were presented to some experts and they specified factors in consistence with status of the organization.

**Table 5: components of quality of services**

Main components of quality of services in Real Estate Registration Organization (dimensions)	Sub-components of quality of services in Real Estate Registration Organization (indices)
Physical dimension	<ol style="list-style-type: none"><li>1. appropriate physical appearance of employees</li><li>2. appropriate notification: the billboard of floors and notification brochures required to take registration measures</li><li>3. appropriate decoration and cleanness and aesthetics of the office</li><li>4. physical facilities such as comfortable chairs, water cooler, appropriate cooling system, adequate light and clean and good smelling space</li></ol>
Reliability	<ol style="list-style-type: none"><li>1. modern facilities and documents and up to date technology</li><li>2. reducing number of written and manual documents</li><li>3. readability and simplicity of application forms and required documents</li><li>4. respectful behavior with clients</li><li>5. appropriate work space and appropriate number of employees due to number of clients</li></ol>
Accountability	<ol style="list-style-type: none"><li>1. ability to respond the demands of clients</li><li>2. ability to communicate clients</li><li>3. consideration of complaints of clients</li></ol>



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	<ol style="list-style-type: none"> <li>4. respect and politeness of employees</li> <li>5. continuous tendency of employees to help the clients</li> <li>6. urgent presentation of services for clients by employees</li> <li>7. responsiveness of employees against clients</li> <li>8. responsiveness of employees</li> <li>9. selecting a knowledgeable person in the office to guide the clients and to provide required information about the registration issues and answering their questions</li> </ol>
Confidence	<ol style="list-style-type: none"> <li>1. taking commitments absolutely on time</li> <li>2. maintaining the records carefully and sense of security of clients</li> <li>3. increasing security of using technological factors and giving confidence to clients</li> <li>4. increasing electronic services with high quality to reduce in person referral to Registration Organization</li> </ol>
Quick services (optimized)	<ol style="list-style-type: none"> <li>1. providing services in shortest time possible on behalf of personnel and no need to another referral of clients</li> <li>2. transparency of the procedure for clients</li> <li>3. lack of any kind of mistake in delivery of services such as mistake of personnel and communicative networks</li> <li>4. using latest innovations including turning devices and file tracking system and taking registration processes through Real Estate System and so on</li> </ol>
Ease of access (sympathy)	<ol style="list-style-type: none"> <li>1. providing registration information in consistency with type of procedure during attendance and preventing confusion of clients</li> <li>2. announcement of exact time of supplying services for clients</li> <li>3. availability of an update website to answer the questions of customers</li> <li>4. sufficient number of Official Registration Offices at the city to provide services</li> <li>5. ease of parking cars by clients</li> </ol>



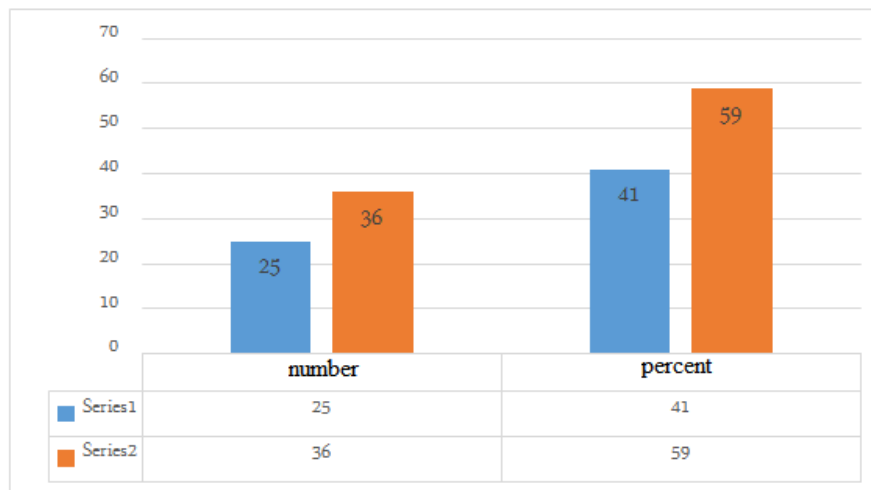
## DEMOGRAPHIC INFORMATION OF STATISTICAL POPULATION

### The status of respondents in terms of gender

Table 6 and figure 2 show the status of respondents in terms of gender. As it is clear, 25 out of 61 respondents (41%) are female and 36 people (59%) are male.

**Table 6: frequency distribution and percent of respondents based on gender**

index gender	Frequency	Percent
Female	25	41
Male	36	59
Total	61	100



**Figure 2: frequency distribution and percent of respondents based on gender**

### Status of respondents in terms of education level

Table 7 and figure 3 show status of respondents in terms of education level. According to the table, 16 respondents (26%) are in diploma level; 28 respondents (46%) in BA level and 14 respondents (23%) are in MA level and 3 respondents (5%) are in PhD level.

**Table 7: frequency distribution and percent of respondents based on education level**

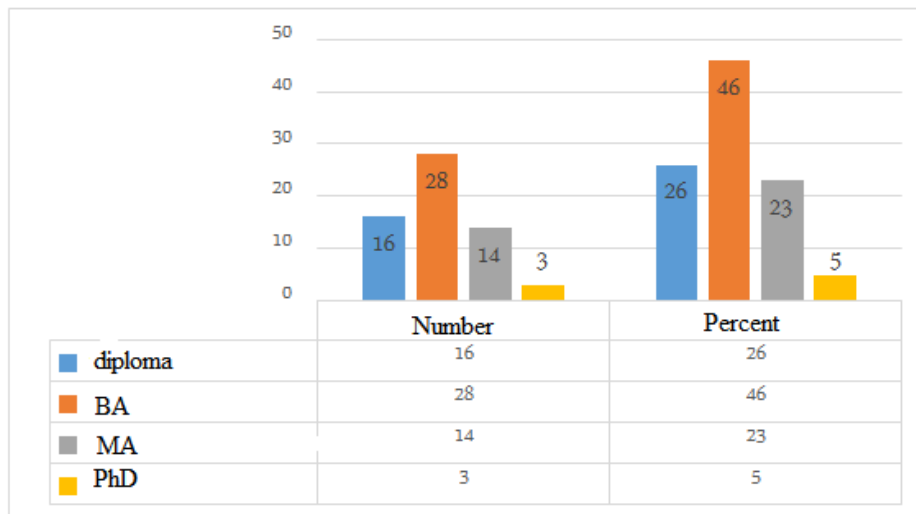
index education level	Frequency	Percent
Diploma	16	26



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BA	28	46
MA	14	23
PhD	3	5
Total	61	100



**Figure 3: frequency distribution and percent of respondents based on education level**

**Status of respondents in terms of age**

Table 8 and figure 4 show the status of respondents based on age. Accordingly, 17 respondents (28%) were in age range of 20-30 years old; 27 respondents (44%) were in age range of 30-40; 12 respondents (20%) are in age range of 40-50 and 5 respondents (8%) are in age range of 50-60 years old.

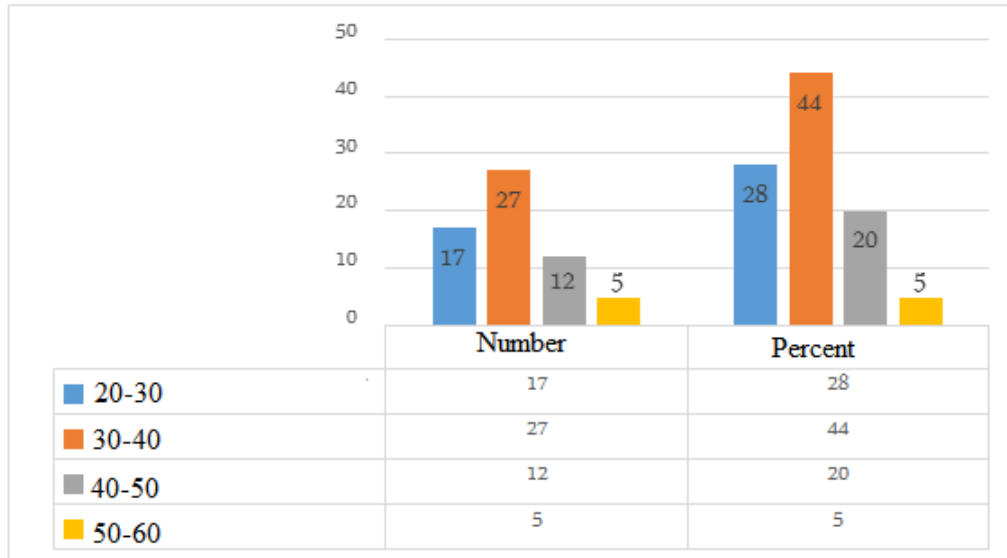
**Table 8: frequency distribution and percent of respondents based on age**

index age	Frequency	Percent
20-30	17	28
30-40	27	44
40-50	12	20
50-60	5	8
Total	61	100



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**Figure 4: frequency distribution and percent of respondents based on age**

**Status of respondents in terms of number of referrals to Registration Office**

According to table 9 and figure 5, 3 respondents (5%) have referred to the office 1 time to take registration affairs; 7 respondents (11%) have referred 2-3 times and 51 respondents (84%) have referred to the office more than 3 times.

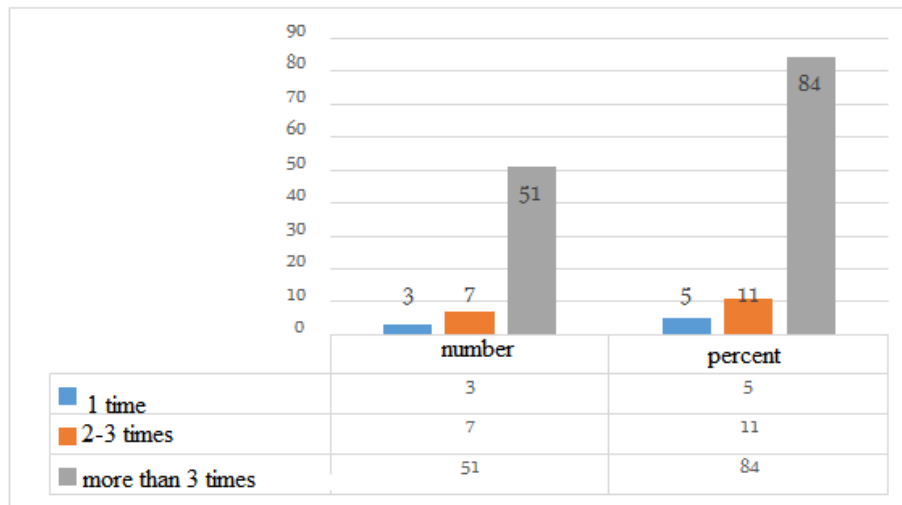
**Table 9: frequency distribution and percent of respondents based on number of referral to the office**

index number of referrals	Frequency	Percent
1 time	3	5
2-3 times	7	11
More than 3 times	51	84
Total	61	100



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**Figure 5: frequency distribution and percent of respondents based on numbers of referrals to registration office**

In order to take paired comparisons, the verbal expressions of table 10 are used:

**Table 10: fuzzy scale and corresponding verbal expressions**

Code	Verbal expressions	Fuzzy number
1	Same	(1,1,1)
2	Relatively more important	(1,3,5)
3	More important	(3,5,7)
4	Very important	(5,7,9)
5	Absolutely more important	(7,9,9)

**Calculating final weight of criteria, sub-criteria and items:**

**Table 11: matrix of final weights of criteria for identification and prioritization of factors affecting improvement of services**

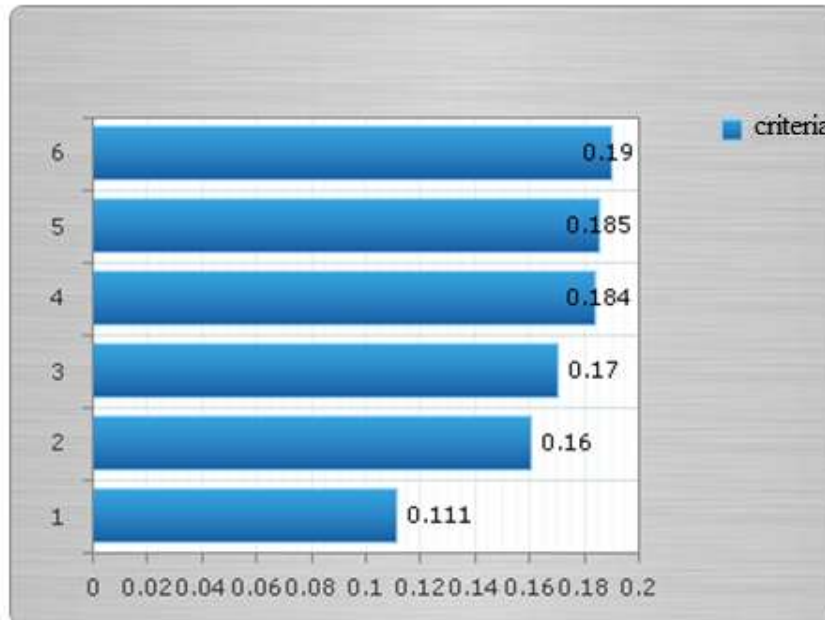
Component	Final weight of components
Physical dimension	0.111
Reliability	0.185
Accountability	0.19
Confidence	0.16
Quick service (optimized)	0.184



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Ease of access (sympathy)	0.17
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**Figure 6: the diagram of final weight of criteria for identification and prioritization of factors affecting improvement of services**

**Table 12: matrix of final weights of cub-criteria compared to identification and prioritization of factors affecting improvement of services**

Component	Final weight of components
Appropriate physical appearance of employees	0.021
Notification (the billboard of floors and notification brochures required to take registration affairs)	0.035
Appropriate decoration and cleanness and aesthetics of the office	0.025
Physical facilities such as comfortable chairs, water cooler, appropriate cooling system, adequate light and clean and good smelling space	0.031
Physical facilities such as comfortable chairs, water cooler, appropriate cooling system, adequate light and clean and good smelling space	0.062





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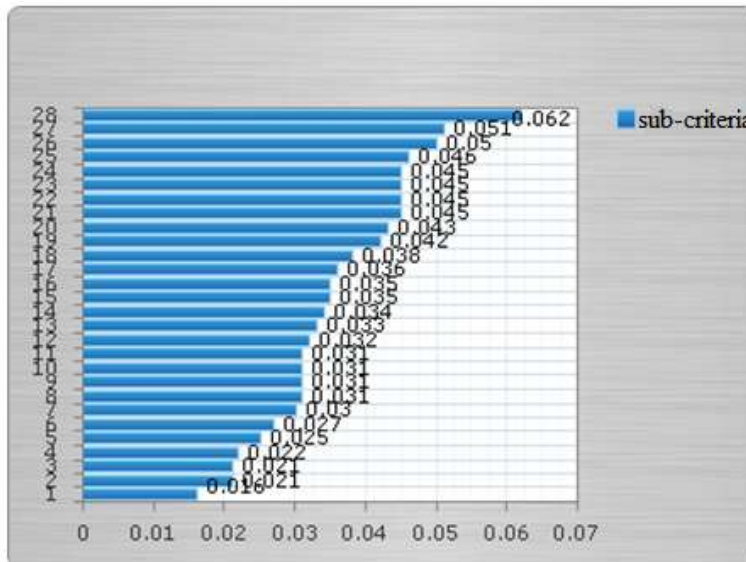
Modern facilities and documents and up to date technology	0.045
Reducing number of written and manual documents	0.027
Readability and simplicity of application forms and required documents	0.051
Respectful behavior with clients	0.034
Appropriate work space and appropriate number of employees due to number of clients	0.031
Ability to respond the demands of clients	0.03
ability to communicate clients	0.022
consideration of complaints of clients	0.038
respect and politeness of employees	0.036
continuous tendency of employees to help the clients	0.021
urgent presentation of services for clients by employees	0.031
responsiveness of employees against clients	0.031
responsiveness of employees	0.033
selecting a knowledgeable person in the office to guide the clients and to provide required information about the registration issues and answering their questions	0.045
taking commitments absolutely on time	0.045
maintaining the records carefully and sense of security of clients	0.046
increasing security of using technological factors and giving confidence to clients	0.043
increasing electronic services with high quality to reduce in person referral to Registration Organization	0.05
providing services in shortest time possible on behalf of personnel and no need to another referral of clients	0.032
transparency of the procedure for clients	0.045
lack of any kind of mistake in delivery of services such as mistake of personnel and communicative networks	0.035
using latest innovations including turning devices and file tracking system and taking registration processes through Real Estate System and so on	0.042



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providing registration information in consistency with type of procedure during attendance and preventing confusion of clients	0.016
announcement of exact time of supplying services for clients	0.021
availability of an update website to answer the questions of customers	0.035
sufficient number of Official Registration Offices at the city to provide services	0.025
ease of parking cars by clients	0.031



**Figure 7: diagram of final weights of sub-criteria to identify and prioritize factors affecting improvement of services**

**The results obtained from answering research questions using Fuzzy AHP method**

The main research questions have been answered using Fuzzy AHP method. In the following, the answers of the questions are presented.

Question results: effective factors, weights and significance of each factor in quality of services of Real Estate Registration Organization of Iran

According to the table above, effective factors, weight and significance of each factor in quality of services provided by studied organization in this study are as follows:

Accountability with weight of 0.19 in rank 1



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Reliability with weight of 0.185 in rank 2

Quick services (optimized) weighted to 0.184 in rank 3

Ease of access (sympathy) weighted to 0.16 in rank 4

Confidence weighted to 0.16 in tank 5

Physical dimension weighted to 0.111 in rank 6

**Table 13: summary of results of factors affecting improvement of services**

Components	Final weight of components
Accountability	0.19
Reliability	0.185
Quick service (optimized)	0.184
Ease of access (sympathy)	0.17
Confidence	0.16
Physical dimension	0.111

What is the weight and significance of each factor in quality of services provided by Real Estate Registration Organization of Bandar Abbas?

Using screening method, the criteria of quality of services and AHP method are presented in table 14.

**Table 14: criteria and their weighted significance**

Criteria	Total weight
Physical dimension	(0.065,0.114,0.208)
Reliability	(0.103,0.185,0.333)
Accountability	(0.099,0.192,0.359)
Confidence	(0.086,0.157,0.286)
Quick services (optimized)	(0.102,0.184,0.331)
Ease of access (sympathy)	(0.094,0.168,0.305)

## RESEARCH ADVANTAGES AND INNOVATIONS

The main objective of this study has been providing a new method for evaluation and enhancement of qualitative level of services provided by public organizations. This study has two advantages compared to other studies: first, to identify the evaluation



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criteria, this study has localized and applied a special instrument of quality of services. In this study, the required criteria have been derived from the models presented in 30 past years to the date. The criteria include physical dimensions (tangibility), reliability, accountability, confidence, quick services (optimized), ease of access (sympathy), which are considered as the best criteria for public organizations in view of clients. The significance of each criterion is determined using Fuzzy AHP method.

The second advantage is controlling uncertainties using fuzzy environment. The logic provides a new method for purpose of formulation of sensory and qualitative quantities and concepts. At the past, the theories used to be formulated based on quantities; although the new logic has the ability to formulate qualitative parameters too.

The method presented in this study has the ability to evaluate and rank public offices and identify weaknesses of each office to enhance qualitative level of services.

#### **RESEARCH LIMITATIONS**

Evaluation of quality of services in public sector has some difficulties compared to private sector. The problems have led to difficulty of quality of services in this study. To analyze the models of quality of services at the past, the authors had to study the previous models. To this end, the scholars used to refer to lots of universities and academic centers and libraries several times. Hence, to obtain these papers, the scholars used to consume much time and cost.

As the respondents were from ordinary and general clients of Real Estate Registration Organization of Bandar Abbas, they were unfamiliar with Fuzzy AHP method and paired comparisons and this was one problem to fulfill the questionnaires. Although required explanations were given to the respondents several times, they were unable to fulfill the questionnaire in standard way. Also, the paired comparisons are increased exponentially, so that increase in number of criteria, the motivation of respondents to fulfill the questionnaires is decreased and the items are sometimes answered without thinking.

#### **SUGGESTIONS**

The suggestions provided in this study are as follows:

##### **Applied suggestions:**



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The most important output of this study is to determine preference of improving quality of services in the Real Estate Registration Organization of Bandar Abbas. The manager of the organization should use these factors in the operational plans to enhance quality of services provided by this organization.

The suggestion for the Office of Registration of Documents and Real Estate of Hormozgan Province is to be informed of ranks and factors affecting improvement of services provided by the organization to introduce the registration office of Bandar Abbas as a benchmark to other registration units in Iran. Placing a center as a benchmark can accelerate enhancement of quality of services of other departments. The criteria presented in this study are provided based on their frequency in researches of past 30 years (public and private sectors) after making modifications. Hence, the managers of other departments can also use the outputs of this study to evaluate quality of services.

#### **SUGGESTIONS FOR FURTHER STUDIES**

The proposed method in this study has the ability to be implemented in other cases of decision making. In future, this method could be applied for purpose of multicriteria decision making under uncertainty conditions and majority of managerial decisions. The suggestion is to use multicriteria decision making methods like PROMETHEE, ELECTRE and TOPSIS to evaluate and rank other registration centers and compare the obtained results.

The present study has evaluated quality of services in public sector with the hypothesis of independence of criteria. The suggestion is to analyze the correlation between criteria and the reevaluation is taken in case of existence of correlation and then, the results should be compared with the proposed model.

It would be better to compare the quality of services in different public departments and specify the desired criteria of the evaluation.

The suggestion is to use this model to compare the quality of services provided by public and private sectors.

In this study, the significance of respondents is assumed same and it would be better to specify some criteria to determine significance of each respondent.



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**Identification and prioritization of factors affecting services provided by Real Estate Registration Organization of Iran using analytical Hierarchy process (AHP) from viewpoint of clients (case study: Real Estate Registration Organization of Bandar Abbas)**

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