

The study of the possibility of using activity-based costing system (ABC) (Case Study: General Directorate of Roads and Urban Development of East Azerbaijan Province)

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Abstract

Activity-based costing system (ABC) is one of the new systems of cleared cost of goods and services which provides a better and more accurate management information to users to assist in appropriate decision making. This study is a scientific and applied research and its methodology is descriptive-causal-comparative. The population of the research are managers and staff of the General Directorate of Urban Development of East Azerbaijan province. Using census, all managers and staff of the financial sector in province and cities that their number is 150, have been selected as sample. In order to collect information and data required to test the hypotheses, five-item Likert-type questionnaire was used. Its validity was confirmed by a number of professors of management and Cronbach's alpha was used to confirm the validity of the questionnaire, its amount was 0.89 that indicates its high reliability. In order to analyze the data, the Kolmogorov-Smirnov (to test for normality), and to confirm the hypotheses, t test and Wilcoxon tests were used. The results of research show that there are significant differences between the information of cleared-cost based on activity-based costing system with the traditional system in the General Directorate of Roads and Urban Development of East Azerbaijan Province.

Keywords: Activity-Based Costing, Traditional Costing, Decision-Making, Decision- Making Quality.

Introduction:

Industrial accounting system in Iran, despite of the passage of more than 50 years of accounting entry as of current form, had not been able to be deployed in the industry (Birnedra and Igor, 2011). And this is to an extent which companies to calculate costs, use unit rates. And considering the fact that decision-makers need to know about the importance of making decisions about which determine the selling price of their products, and considering the fact that the decision-makers need to have important information for making decisions about which determine the selling price of their products, studying and doing

research in the field of management accounting, emphasizing on costing methods can provide useful information more relevant to decision making (Aziz, 2010). "Activity-based costing using appropriate methods", the effects of changes in activity, complexity, diversity and special characteristics of each activity in calculating costs, the cost of it will be considered (Carsten, 2011). One feature of this system that distinguishes it from other systems is the ability to accurately identify costs and provide non-financial information to improve performance and increase operational efficiencies. And as much as possible, using appropriate methods, these effects are quantitatively calculated to absorb the cost of services and products (Carlos, 2012). Several studies have pointed to the importance of activity-based costing system. For example, the results Tahir Kordi (2013) showed that activity-based costing system, compared with traditional costing systems, is an adequate and reasonable method for allocating the costs of raw goods and final products. And as such, is costing these products. The research results of Eghbalifar (2012), showed that using ABC, we can evaluate the performance and activity centers and determine surplus or shortage of personnel and labor departments by comparing the labor force and volume of activity. Ebrahimi (2008) showed that activity-based costing system, in addition to accurate measurement of the cost of cost objects, is able to provide useful information about the performance of the organization's business processes, Also, it is used as a powerful tool to improve business enterprise. Given that the major elements and other resources used in General Directorate of the Roads and Urban Development province of East Azerbaijan province, is human resources activities that the use of this system, due to its capabilities, is very useful. One of the most basic problems of public and private organizations, is using costing method and ensuring the application of these methods in the provision of information in appropriate decision-making. The importance of this problem increases when existing laws in the country, especially tax law and auditing, has not always kept pace with growth and expanding new systems costing. In addition, the lack of theoretical knowledge as well as new methods of costing between public and private managers of institutions, as a fundamental deficiency, is evident. The problem in the service institution is more because most of its constituent elements are human resources activities and its outputs to a large extent invisible (Adams, 2010). In the Roads and Urban Development of country, the main purpose of its creation is service delivery and providing travel facilities for passengers, this problem becomes more evident. Therefore, costing systems should be designed so that to achieve the main objectives of their creation, provide access to appropriate information for management decisions. Therefore, to deal with the existing failure, it can be operated from two aspects. Some of these flaws are the weakness of the theoretical foundations of modern systems costing the country in Roads and Urban Development of country. This is solvable through scientific and academic experts in seminars. And the other part of the problem is related to deficiencies and weaknesses of existing laws and regulations that is resolved by legal solutions. However, implementation of new systems, in addition to theoretical knowledge, is the presence of trained personnel for implementation of new systems and culture which is necessary and this is conducted through education. Moreover, according to the accounting system of the General Directorate of Roads and Urban Development which is based on the federal government's accounting method, Classification of its cost is different partly with costing and grouping operations expenses for calculation of cost of services, especially the proposed system which will be solved by referring to the detailed operating information and financial statements during the period in question. Overhead costs and their impact on costs and, ultimately, decide the most important issues facing managers, are among the most important things that provided the need for doing the research. To provide

the necessary evidence to answer the main question of this study, the main goals of the present study. This is the main research question: there is a significant difference between the traditional system and Activity Based Costing System and General Directorate of Urban Development in the Department of East Azerbaijan province?

Research Hypotheses

- 1- There is significant difference between the cost information, based on activity-based costing system with the traditional system in the Directorate General of Roads and Urban Development of East Azerbaijan province.
- 2- The activity-based costing system, compared with traditional systems, provides the necessary and sufficient information to decision-makers in the Directorate General of Roads and Urban Development of East Azerbaijan province.
- 3- Activity Based Costing system, compared with the traditional system, is effective in improvement of the quality of decision-making in the field of Directors (high, intermediate and operational).
- 4- Activity Based Costing system, compared with traditional systems, reduces the administrative costs and services in the Directorate General of Roads and Urban Development of East Azerbaijan province.

Research methodology

This study is a scientific and applied research and its methodology is descriptive-causal-comparative. The population of the research are managers and staff of the General Directorate of Urban Development of East Azerbaijan province. Using census, all managers and staff of the financial sector in province and cities that their number is 150, have been selected as sample. In order to collect information and data required to test the hypotheses, five-item Likert-type questionnaire was used. Its validity was confirmed by a number of professors of management and Cronbach's alpha was used to confirm the validity of the questionnaire, its amount was 0/89 that indicates its high reliability. In order to analyze the data, the Kolmogorov-Smirnov (to test for normality), and to confirm the hypotheses, t test and Wilcoxon tests were used. Also, to map the distribution and abundance and mean graph, descriptive statistics is used. Data analysis was conducted with SPSS software.

Research Findings

Kolmogorov-Smirnov test:

This test is used when a researcher wants to determine normal or non-normal distribution and according to the following table, it is better to use Wilcoxon test to verify or the first and fourth hypotheses. And t-test is used to verify or reject the second and third hypotheses.

Table 2: Kolmogorov-Smirnov Test

9. Hypotheses		8. Traditional systems cleared cost	7. Activity Based Costing system cleared cost information.	6. Traditional information systems necessary to provide decision-makers	5. Activity Based Costing system and adequate information available to decision-makers.	4. Traditional systems improve the quality of decision-making in the field of managers	3. Activity Based Costing system to improve the quality of decision-making in the field of Directors	2. Traditional systems reduce administrative costs and services	1. Activity Based Costing systems reduce administrative costs and services
18. No		17. 150	16. 150	15. 150	14. 150	13. 150	12. 150	11. 150	10. 150
28. Normal parameters	27. mean	26. 2.2517	25. 3.5917	24. 2.4855	23. 3.9128	22. 2.4465	21. 3.7092	20. 2.3575	19. 3.3542
37. standard deviation		36. 4078.2	35. 52828.	34. 37443.	33. 37781.	32. 37113.	31. 36148.	30. 39236.	29. 67810.
47. Most differences	46. pure	45. .138	44. 128.	43. 189.	42. 101.	41. 155.	40. 094.	39. 155.	38. 094.
	56. positive	55. .102	54. 128.	53. 189.	52. 096.	51. 155.	50. 094.	49. 155.	48. 094.
65. negative		64. -.138	63. -.124	62. -.092	61. -.101	60. -.145	59. -.086	58. -.145	57. -.086
74. Kolmogorov-Smirnov		73. 1.695	72. 1.565	71. 2.317	70. 1.235	69. 1.894	68. 1.145	67. 1.843	66. 1.894
83. Significance		82. .043	81. 038.	80. 130.	79. 138.	78. 220.	77. 254.	76. 046.	75. 023.

Testing Hypothesis

Table 3: testing first hypothesis

88. first hypothesis	87.	86. Number	85. Average Rating	84. Square ratings
94. Clear Cost	92. Negative	91. ^a 148	90. ^a 148	89. 00.11167

Information in Activity Based Costing system compared with the traditional system	93. Ratings			
	98. Positive Ratings	97. ^b 2	96. ^b 2	95. 00.8

121.	120. average standard deviation	119. Standard deviation	118. number	117. mean	116.
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	102. empty	101. 0 ^c	100.	99.
	106. total	105. 150	104.	103.

107.

108. first hypothesis	109. Clear Cost Information in Activity Based Costing system compared with the traditional system
110. Significance	111. ^a -587.10
	112. .000

113.

114.

115.

Table 4: testing second and third hypotheses

127. Activity-Based Costing traditional system	126. .03095	125. .37781	124. 149	123. 3.9128	122. second hypothesis (necessary and sufficient information available to decision makers)
	131. .03067	130. .37443	129. 149	128. 2.4855	
138. Activity-Based Costing traditional system	137. .2961	136. .36148	135. 149	134. .7092	132. third hypothesis (improving the quality of decision-making) 133.
	142. .03040	141. .37113	140. 149	139. 2.4465	

147. number	146. mean	145. Standard deviation	144. average standard deviation	143.
152. 150	151. 3.1333	150. .69882	149. .05706	148. second hypothesis
157. 150	156. 3.06	155. .45909	154. .03748	153. third hypothesis

160.	158. testing second and third hypotheses					
	159.					
	165. T	164. Degrees of freedom	163. Significance	162. average difference	161. With 95% confidence of difference	
					167. low	166. high
174. second hypothesis	173. 31.431	172. 148	171. .000	170. 3.1333	169. 2.7064	168. 3.9617
181. third hypothesis	180. 32.214	179. 148	178. .000	177. 3.06	176. 2.4859	175. 3.6341

Table 5: Testing the fourth hypothesis

186. fourth hypothesis	185.	184. Num.	183. Average Rating	182. Square ratings
192. Reduction of administrative costs and service compared to the	190. Negative 191. Ratings	189. ^a 148	188. 76.60	187. 11162.40

traditional system of activity-based costing system	198. positive 199. Ratings	197. ^{b1}	196. 12.53	195. 12.53
193.	203. empty	202. ^{c1}	201.	200.
194.	207. total	206. 150	205.	204.

209. first hypothesis	208. Activity-based costing system with the traditional system
213. significance	210. ^a 10.593 211. 212. .000

Conclusion:

Due to the nature of the system activity-based costing (ABC) and the history of creation of the costing system and the evolution and progress of ABC, this method is better to be used for all industrial groups (Production and services). But according to the criteria for using this costing method, after examining the possibility of using activity-based costing, system should be implemented. According to the first hypothesis, there are significant differences between the cost information based on activity-based costing system with the traditional system in the General Directorate of Department of Urban Development of East Azerbaijan Province. As it was expected, activity-based costing system provided the cost allocation method better than traditional systems. The results indicate that activity-based costing system provides optimized and better information about the cost of the organization's managers. The result is a clear indication of the use of activity-based costing system in the General Directorate of Roads and Urban Development of East Azerbaijan Province. given the country's growing movement in international fields and development projects and increasing competition between organizations, using accurate information to make decisions faster is binding. The results are in parallel with the research findings of Taher Kurdi (2013), Dehkordi (1998), Bernard et al. (2011) and are not parallel with the research findings of Sandra and Hashemi Nick (2012).

The results showed that the activity-based costing system can be a useful management solution to achieve accurate decision-making.

The results are in parallel with the research findings of Namazi (2009), Azizi (2012), Fartookzadeh (2014), Carsten (2011), and Don and others (2013) and are not in parallel with the research findings of Sandra et al (2013) and Hashemi Nick (2012).

The results showed that activity-based costing system, compared with traditional system, is effective on improvement the quality of decision-making in the field of managers (high, intermediate and operational) of the General Directorate of Roads and Urban Development of East Azerbaijan Province. The results are in parallel with the research findings of Anbus (2006), Talebi (2013), and Shabahang (2009).

The results showed that the activity-based costing system, compared with traditional system, reduces administrative costs and services in the Directorate General of Roads and Urban Development the East Azerbaijan province. The results are in parallel with the research findings of Taher Kurdi (2013). And are not in parallel with the research findings of Sajjadinezhad (2011).

Therefore, based on the positive effect of Activity-based costing system, it is recommended that managers should consider activity-based costing system and, thus, improve the performance and decision-making in the organization.

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