



Using Accounting Information in Decision Making of Hospitals Managers

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ABSTRACT

Decision making process requires information. Accounting is the most important source of information. In 1998, the international federation of accountants issued a statement about the scope and using of accounting. It identified 4 stages for using accounting information: cost determination, planning and financial control, reduction of resources waste and creation the value. This study was designed to provide insights into using accounting information in managerial decision making. Using the IFAC classification, this study investigated evolution stage of using accounting information in hospitals. The study population consisted of financial employees working at the hospitals located in Tehran (Iran). The study sample consisted of 54 private hospitals and 82 public hospitals. The instrument of data collection was questionnaire. Results showed that hospitals managers don't use accounting information to reduce resources waste and create the value. Maybe, it is because of little familiarity with accounting in hospitals. Private hospitals managers use accounting information to planning and control. However, Public hospitals managers only use accounting information to determine the services cost. Findings showed that public hospitals managers use accounting information less than private accounting. Maybe, it is because of less accountability and using governmental resources in public hospitals.

Keywords:

Accounting, Information, Decision Making.



1. Introduction

Based on decision making theory, information plays a vital role in decision making. Decision making process requires information. Accounting provides important information for decision making. Accounting can be divided into financial accounting and management accounting. Financial accounting relates on reporting a firm's financial information to external users and management accounting relates on measuring, analyzing and reporting for internal using by management. Management accounting provides financial and non-financial information to make managerial decisions (Zager and Zager, 2006). According to the Institute of Management Accountants (2012): "Management accounting involves in management decision making, planning, performance evaluating and formulating and implementing the firm's strategy".

Thus, accounting is a service function to manager (Zager and Zager, 2006). Accounting information is necessary to understand financial situation of the firm and used as the basis of decision making (Ullah et al, 2014). Firms often use accounting information to support the management decisions (Vitez and Baligh, 2011). A successful manager needs a lot of reliable information in order to be able to make appropriate decisions. Therefore, accounting information is vital in managing a firm and implementing an internal control system. Accounting information is considered as a subsystem of management information. It is a food for management planning and decision making. Effective and efficient information plays a central role in management decision making (Tunji, 2012). Management needs good quality information (Nejadosseini, 2012). An efficient system is able to aid all organizations, by contributing to improving the services quality, reducing costs and eliminating all resource-wasting activities; it assists to knowledge and experience which results in developing the firm and increasing its competitive advantage through providing information on time (Dalabeeh and Seif Obeid, 2012).

In healthcare context, in general, and in hospital context (which are the most essential and most costly component of health systems) in particular, decision making is a more complex process. In addition, clinical decisions are characterized by situations of uncertainty where not all the information needed to make them is, or can be, known. The complexity of today's health care system has brought with it a need

for all managers to have an understanding from accounting and financial management (Finkler and ward, 2006). Public health care systems can be improved by an appropriate accounting system (Padovani, Orelli and young, 2014). Appropriate information helps managers understanding their tasks and reducing uncertainty before decision making (Pettersen and Nyland, 2006).

Hospitals are complex and decoupled organizations (Pettersen and Nyland, 2006). Hospitals should maintain an accounting system to provide information for internal management purposes. The hospital's accounting system provides the financial and nonfinancial information necessary for department heads to plan and run their departments. Thus, the department heads of nursing, medical records, laboratory, etc., are responsible for the financial integrity of their own departments. As a set of managerial tools to fix responsibility at the department level, managerial accounting system must be maintained (Thompson, Averili and Fetter, 1979). For hospital management purposes, as part of the decision-making process, the managers expect different information within various time horizons. This entails a different way of selecting accounting tools and techniques (Kister, 2015).

2. Literature Review

The international federation of accountants (IFAC) issued a statement concerning on understanding of the scope and purposes of management accounting. IFAC identifies 4 stages of using the management accounting based on emerging of management accounting techniques. This study uses the following classification and their techniques for identifying accounting evolution stage in hospitals. This study is designed to provide insights into using accounting information in managerial decision making in hospitals. For this purpose, using accounting techniques by managers is investigated.

Stage 1: Cost Determination and Financial Control (pre 1960)

Before 1960s, accounting information was used to determine the product cost. Management was concerned with internal matters such as production capacity. They only use accounting for calculating cost production (Ashton, Hoppers and Scapens, 1995). In this period, costing methods was created and used.

Management accounting was seen as a “technical activity” for the pursuit of organizational goals and was not used to make decisions. It only was a calculating means. There was not an independent system for management accounting and managers used information such as cost, comparison items and financial ratios which were outputs of bookkeeping (Parkash, 2013). Financial measures were used in evaluating the performance and investment projects (Abdel-Kader and Luther, 2008). Padovani, Orelli and young (2014) showed that accounting systems is a more vital part of the hospitals’ management control system and cost management objectives. Cao, ToYabe and Akazawa (2008) argued that cost saving in an important factor in hospitals management. They showed that a cost accounting system controls the cost in hospitals. Lan (1999) indicated that hospital administrators are using the control systems. The systems are positively correlated with hospital performance and motivate actions designed to improve performance. The results showed that medical personnel-physicians and nurses- are gaining familiarity with hospital accounting and control systems.

Stage 2: Management Planning and Control (by 1970)

In this period, managers use management accounting information for planning and control. Management accounting is seen as “management activity” but in a staff role. It involved staff support to line management through using such technologies as decision analysis and responsibility accounting (Ashton, Hoppers and Scapens, 1995). Management accounting was a means for preparing the budgets and analyzing deviations (Parkash, 2013). Some other management accounting techniques in this stage are C.V.P (cost. volume. profit) analysis, budgeting (Abdel-Kader and Luther, 2008). Kister (2015) showed that information is used in estimating service costs, creating budgets and variance analysis in medical facilities. Abernethy and Stoelwinder (1988) examined the use of budgeting as a management control strategy, in relation to the goal orientation of nurse managers, in four large teaching hospitals. The goal orientations and use of budgeting by nurse managers is compared with those of physician managers and other sub-unit managers. The results indicate that nurse managers appear to be developing

their goals of professionalization without a diminution of their organizational focus or their orientation towards providing a high standard of patient care. Cook (1995) argued that budgetary control is the core of accounting in the hospitals. It provides the basis of short term financial control, ad hoc investigations, and strategic planning over a longer term. However, when plans are drawn up for a three, five, or 10 year perspective then there is a further management accounting technique that is equally important: capital expenditure investment appraisal.

Stage 3: Reduction of Resource Waste (by 1990)

In this stage, increased competition was accompanied and underpinned by technological development which affected many aspects of the industrial sector. For example robotics and computer-controlled processes improved the quality and reduced the costs (Ashton, Hoppers and Scapens, 1995). Management accounting was used as cost management means (Abdel-Kader and Luther, 2008). Among the popular techniques introduced during this stage were Just-In-Time (JIT) and linear programming. Some other management accounting techniques in this stage are ABC (activity based costing), ABB (activity based budgeting), zero-based budgeting, nonfinancial measures related to evaluate the employees and internal processes performance, quality costing (Abdel-Kader and Luther, 2008). Waters, Abdallah and Santillán (2001) concluded that applying Activity-Based-Costing (ABC) in a developing country setting is feasible, yielding results that are directly applicable to pricing and management. ABC determines costs for individual clinics, departments and services according to the activities that originate these costs, showing where an organization spends its money. ABC also highlights areas in the health care process where efficiency improvements are possible. However, it is not implemented in hospitals. Dalabeeh and ALshbiel (2012) showed that there is not a significant role for accounting information in the reduction medical services waste at the hospital. There was not any correlation between each component of accounting information systems (human resources, hardware and equipment, software, databases, and procedures) and the reduction of waste at the hospital.

Stage 4: Creation of Value (to date)

With increasing global competition after 1990s, managers seek to create value for their business. During this stage, companies faced major business uncertainty, technological innovations. Therefore, firms started implementing management accounting methods, which assess economic value. Management accounting shifted to the generation of value through the effective use of resources and elimination of non-value added activities. In this period, managers tried to identify factors of drivers that could potentially increase shareholder and customer value (Ashton, Hoppers and Scapens, 1995). Among the popular techniques introduced during this stage were Total Quality Management (TQM), Activity-Based Management (ABM), Benchmarking, Balance Score Card (BSC) and Reengineering. This stage is known as strategic management accounting. It is used at the most of strategic and long-term decisions such as investment decisions, performance evaluation (Parkash, 2013). Some other management accounting techniques in this stage are performance valuation based on nonfinancial measures related to customers, EVA (economic value added), Target costing, ABM (activity based management), benchmarking, analyzing the competitors' weaknesses and competitive position, customer profitability analysis, value chain analysis, cost of capital and cash flow discounting methods (Abdel-Kader and Luther, 2008).

Jacobs (1998) over the last ten years or so, many countries have undertaken public sector reforms. As a result, accounting plays a more important role. However, many studies have only discussed the reforms at a conceptual level (not practice level). One of these reforms is related to accounting and to implement its techniques in health care context (especially in the hospitals). Jones (1995) minimal knowledge of actual operational costs and inaccurate charge accounting systems, may lead hospital managers to misinterpret the potential net long-term effects of their quality improvement efforts. Pettersen and Nyland (2006) found that accounting information was not perceived by clinicians as important decision tools at the clinical levels in the hospital. Lapsley (2001) documented the failure of accounting information to create the value because of little familiarity of hospitals managers and doctors.

As a result, the study questions are the following:

- Q1:** Do hospital managers use accounting information to determine cost and financial control?
- Q2:** Do hospital managers use accounting information to planning and control?
- Q3:** Do hospital managers use accounting information to reduce the resources waste?
- Q4:** Do hospital managers use accounting information to create the value?

Moreover, there are significant differences between accounting of hospital and private organization because of different environment (Arasli, Ekiz and Katircioglu, 2008, Finkler and eard, 2006). Accounting is developed through the influence of the environment in which it applied and at the same time contributes to forming the environment (Kister, 2015). This is documented by the studies of changes in the accounting in the context of the changing conditions such as Burns and Scapens (2000), Cobb, Helliard & Innes (1995) and Kister (2015). Holtzman (2004) argues that changes in the environment have led accounting firms to provide new services to their customer which, in consequence, has led to a redefinition of the management accountants' role within organizations. As a result, the above questions are investigated in public and private hospitals, separately.

3. Methodology

This study is a survey and the study population consisted of financial employees (FE) working at the hospitals located in Tehran (Iran). Hospitals are divided in to two categories: public and private and sample consisted of 54 private hospitals and 82 public hospitals. Data have been collected through questionnaire survey among the sample.

The questionnaire has been prepared based on the literature. Some expert opinion has been taken in preparing the questionnaire. The questionnaire included two sections: the first included general information and the second consisted of accounting techniques using in managerial decisions. This section includes 30 questions (5 questions for stage 1, 7 questions for stage 2, 7 questions for stage 3, 11 questions for stage 4). The responses were rated on a five-point Likert scale as follows: always (5 point); often (4 points); sometimes (3 points); rarely (2 points); never (1 points).

The questionnaire was reviewed by a number of academics specialized in accounting in order to identify their opinion on the consistency between items and their correlation with the domain. Proposed amendments and changes were taken into consideration before finalizing the questionnaire. Cronbach Alpha's coefficient of internal consistency was 93.9%. This shows that the scale has statistically acceptable reliability.

SPSS was used for data analysis. Moreover, mean, standard deviation and t-test were used to determine using the accounting information in managerial decisions in Hospitals. Level of confidence is 95% (one tail).

4. Results

Table 1 shows demographic information of the respondents. It shows that in private hospitals, 55.56 percentages of FEs are bachelors and 40.74 percentages are masters and 3.70 percentages are Ph.D. In public hospitals, 1.22 percentages of FEs are less than bachelors and 65.85 percentages are bachelors and 32.93 percentages are masters. In private hospitals, percentage of female FEs is more than public. Most of FEs in private and public hospitals is 40 to 50 years old with 20 to 30 years' experience.

Table 1. Demographic Information of the Respondents

Variable	Variable categories	Private Hospitals	Public Hospitals
		Frequency (percentage)	Frequency (percentage)
Gender	Male	51(94.44%)	80 (97.56%)
	Female	3 (5.56%)	2 (2.44%)
Age	Less than 30 years	2 (3.70%)	1 (1.22%)
	30-40 years	19(35.19%)	26 (31.70%)
	40-50 years	21(38.89%)	31 (37.81%)
	50 and older	12(22.22%)	24 (29.27%)
Experience	Less than 10 years	8 (14.81%)	5(6.10%)
	10-20 years	19 35.19%)	34 (41.46%)
	20-30 years	21 38.89%)	41 (50%)
	30 years and More	6 (11.11%)	2 (2.44%)
Qualifications	Less than bachelors	1 (1.85%)	2 (2.43%)
	Bachelors	34 62.96%)	51 (62.20%)
	Masters	19 35.19%)	27 (32.93%)
	Ph.D.	0 (0%)	2 (2.44%)

Table 2 shows the mean, standard deviation and t-test for each question. Table 3 shows these statistics in each evolution stage of accounting.

Based on table 2, all techniques of stage 1 (cost determine and financial control) are used in private hospitals. However, the most of those techniques are used in public hospitals and only, financial measures (such as accounting rate of return or payback period) are not used in investment projects evaluation. The most of techniques in stage 2 (planning and financial control) are used in private hospitals, but overhead deviations are not analyzed and responsibility accounting is not implemented. In public hospitals,

cash budget and expenses budget are prepared and other accounting techniques and information are not used. The most of techniques in stage 3 (reduction of resources waste) are not used in private hospitals, only, zero-based budgeting is prepared. All techniques in stage 4 (create the value) are not implemented in private hospitals. None of techniques in stage 3 and 4 is implemented in public hospitals.

Table 2. Statistics for each evolution stage of accounting

Stage	Private hospitals			Public hospitals		
	Mean	Std. Deviation	t-statistics	Mean	Std. Deviation	t-statistics
1	3.9741	1.11460	6.422*	3.3951	.65393	5.471*
2	3.8545	.77479	8.104*	2.3223	.50286	-12.204
3	2.2434	.61218	-9.082	1.6359	.47838	-25.822
4	2.2710	.55213	-9.702	1.5277	.57273	-23.278

*Significant (level of confidence is 99%).

Totally, based on table 3, private hospitals are in evolution stage 2. It means that, private hospitals managers use accounting information and techniques to cost determine, planning and control. They don't use accounting information to reduce the resources waste and create the value. Therefore, response of the first and second study questions are yes and others are no.

However, public hospitals managers use accounting information less than private. They use accounting information only to cost determine and financial control, not to planning, reduce the resources waste and create the value. Therefore, response of the first study questions is yes and others are no.

Table 3. Statistics for each question

Stage	questions	Private hospitals			Public hospitals		
		Mean	Std. Deviation	t	Mean	Std. Deviation	t
1	q1. Is Cost of different services calculated in your hospital?	4.1111	1.29828	6.289*	3.7927	1.26430	5.677*
	q2. Is a plant-wide overhead rate used for calculating of services costs?	3.4444	1.78745	1.827*	2.3537	1.42614	4.104*
	q3. Are profitability ratios (such as net income ratio, return on asset) calculated and used in the hospital?	4.42593	.716434	14.626*	4.35366	.743232	16.493*
	q4. Is performance evaluation based on financial measures?	4.1111	1.11027	7.354*	3.6220	1.11820	5.037*
	q5. Is investment projects (fixed assets acquisition projects) evaluated based on accounting rate of return or payback period?	3.7778	1.56213	3.659*	2.8537	1.24843	-1.061
2	q6. Is fixed costs separated from variable costs?	3.7778	1.56213	3.659*	2.0000	1.00615	-9.000
	q7. C.V.P (cost. volume. profit) analysis used?	3.4444	1.35517	2.410*	1.5244	.75728	-17.645
	q8. Are budgets for revenues prepared?	4.4259	.53560	19.564*	2.7561	1.37492	-1.606
	q9. Are budgets for expenses prepared?	4.4444	.50157	21.162*	3.9634	.89505	9.747*
	q10. Is cash budget prepared?	4.4444	.50157	21.162*	3.4390	1.12324	3.539*
	q11. Is overhead deviations calculated?	3.3333	1.71563	1.428	1.2927	.55528	-27.842
	q12. According to responsibility accounting, are responsibility centers (cost centers, revenue centers, income centers and investment centers) determined?	3.1111	1.92958	.423	1.2805	.61412	-25.355
3	q13. Is ABC (activity based costing) used in your hospital?	1.2222	.63444	-20.591	1.3415	.63284	-23.732
	q14. Is ABB (activity based budgeting) used?	1.2222	.41964	-31.131	1.2805	.52762	-29.512
	q15. Is zero-based budgeting used?	1.0000	.00000 ^a	4.203*	1.3293	.52246	-28.958
	q16. Is performance valuation based on nonfinancial measures related to employees (such as innovation, train)?	3.6667	1.16554	1.070	2.3049	.84165	-7.479
	q17. Is performance valuation based on nonfinancial measures related to internal processes (such as errors percentage)?	3.1667	1.14513	-4.467	2.6220	1.07313	-3.190
	q18. Is cost of quality calculated and quality costing used?	2.1111	1.46231	1.479	1.2805	.52762	-29.512

Stage	questions	Private hospitals			Public hospitals		
		Mean	Std. Deviation	t	Mean	Std. Deviation	t
	Q19. Is non-value added activities recognized?	3.3148	1.56403	1.962	1.2927	.61840	-25.001
4	Q20. Is performance valuation based on nonfinancial measures related to customers (such as customer satisfaction, delivery on time)?	3.3148	1.17881	-18.200	2.5488	1.07901	-3.787
	Q21. Is performance evaluation based on EVA (economic value added)?	1.3333	.67293	-20.591	1.3171	.71799	-21.225
	Q22. Is Target costing used?	1.2222	.63444	-18.200	1.3049	.55974	-27.423
	Q23. Is ABM (activity based management) used?	1.3333	.67293	-5.031	1.3293	.68592	-22.057
	Q24. Is benchmarking used?	2.1111	1.29828	-.676	1.2805	.59368	-26.228
	Q25. Are competitors' weaknesses and strengths analyzed?	2.8889	1.20794	-7.354	1.4146	.62758	-22.875
	Q26. Is TQM (total quality management) used?	1.8889	1.11027	1.716	1.2805	.59368	-26.228
	Q27. Is customer profitability analysis used?	3.3333	1.42749	-5.883	1.7317	1.12270	-10.230
	Q28. Is value chain analysis used?	2.1111	1.11027	-.629	1.4390	.68669	-20.585
	Q29. Is competitive position analyzed?	2.8889	1.29828	-2.274	1.8049	1.34659	-8.037
	Q30. Is investment projects evaluated based on calculating cost of capital and discounting of cash flow methods (such as NPV, IRR)?	2.5556	1.43628	-21.227	1.3537	.74323	-20.059

*Significant (level of confidence is 99%).

5. Conclusions

Accounting information is main resources of decision making in organizations. This study was designed to provide insights into using accounting information in managerial decision making in hospitals. In IFAC classification (1998), using accounting information is divided in to 4 stages: cost determination, planning and financial control, and reduction of resources waste and creation of the value. This classification was used to identify evolution stage of accounting in hospitals. Moreover, this study investigated using of accounting information in private and public hospitals, separately. The study population consisted of financial employees working at the hospitals located in Tehran (Iran). The study sample consisted of 54 private hospitals and 82 public hospitals. Data were collected through questionnaire survey among the sample.

Findings showed that almost all techniques in stage 1 and 2 (cost determine, planning and control) are used in private hospitals. However, public hospitals managers use accounting information less than privates. They only use accounting information and techniques to determine service cost and financial control. Its reason may be less accountability and using the public and governmental resources in these hospitals. Therefore, using accounting information differs among public and private hospitals. This is

consistent with the results of Finkler and Ward (2006) and Arasli, Ekiz & Katircioglu (2008). Also, this study showed that hospitals (private and public) managers are not used accounting information and techniques to reduce the resources waste and create the value. Its reason may be little familiarity of their managers. This is consistent with the results of Lapsley (2001) and Pettersen and Nyland (2006) and Waters, Abdallah and Santillán (2001).

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