



Evaluating the Benefits of New Financial System (Accrual Accounting) Establishment in Medical and Health Care Sciences, Guilan University

Mohammad Reza Pour Hosein^{1*}, Morteza Hassanzadeh², Seyedeh Saeedeh Hashemi³

¹Department of Accounting, Payame Noor University, Behshar, Iran, ²PhD Student Professional Business Management,

³Department of Accounting, Payame Noor University, Behshar City, Iran. *Email: Mohammadreza_PourHosein@yahoo.com

ABSTRACT

The purpose of present study is assessing the benefits of accrual accounting establishment in Guilan Medical Sciences University during 2008-2012. This research is a field and scaling survey. Approximately 86.1% of respondents agreed with performing the accrual accounting and had a positive view about its benefits. Research results showed that performing of accrual accounting in Guilan Medical Sciences University can express the total cost of services and activities more clearly and facilitate to perform operational budgeting. Extracted data from this system can help managers in optimum responding and decision making. Finally it was clarified that the value of output data from accrual accounting system in the university is more than the establishment cost of it. Considering the proportional faults of accrual accounting because of having more benefits in comparison with cash basis, performing this system in reporting and financial affairs of Guilan Medical Sciences University leads in not only benefiting from other innate advantages of accrual accounting, but also provides required conditions in the area of changing current university budgeting into operational budgeting and results in achieving organizational goals.

Keywords: Full Accrual Accounting Base, Operational Budgeting, Managers' Optimum Decision Making

JEL Classification: M41

1. INTRODUCTION

Ministry of health, treatment and medical training of Islamic republic of Iran which plays a significant role improving the country's health situation, is one of the most sensible organizations that for its right management the information related to its sources and consumptions should be collected correctly and given to all relevant decision-makers. However, lack of a proper financing system has caused the financing reports to be only given to supervising organizations, and intra-organizational policymakers and intra-decision maker only rely on the macro-budget information (Hillman and Collony, 2011). This matter in its order causes the services' costing and pricing and identification of demand's value implausible with the government's assist and will encounter significant shortage of resources. In this regard, ministry of health, treatment and medical training, has taken actions to change its financial system to a modern financial system. Thus, since 1387, changing the basis of cash to accrual has been

planned in the ministry as the first step to implement aforesaid system (Babajani, 2006).

In different countries, effective factors on the establishment of accrual such as pragmatism, lack of public willing, ideological and political pressures and cultural differences prevents implementing the accounting system associated with the accrual basis instead of cash accounting.

In spite of the increasing process of accepting accrual accounting throughout the world, the acceptance method has been different. These differences are seen in three levels including content, time of transferring from cash accounting basis to accrual one and how it accepts accrual accounting. Besides, results of empirical research suggest that control-based and managing reasons has been the most important factor to move from cash accounting basis to accrual one in the USA, England, Australia and New Zealand.

Accounting basis emphasizes on time identification and registering financial statements, depending when used to register and reporting such statements, it will automatically leads to selecting a type of accounting basis (full cash, balanced cash, full accrual, balanced accrual and semi- accrual).

In full accrual basis, incomes are identified either during education time or research and are reflected in accounting offices. Moreover, on this basis, identification and registering costs, is considered as the time of creation costs. Cash accounting is also an accounting system that is based on receiving and paying cash. So, incomes and expenses, would be identified and registered when their cash is received or paid.

Costs elaboration and more appropriately assets evaluation, plan facilitation and different plans' function evaluation, submitting a vast set of required information particularly in connection with all resources and public section commitments, preparing the necessary area for implementing operational budgeting (as the most optimum way of budgeting at international level) are considered as some of the advantages of accrual accounting (Robinson, 2002; Thomas, 2007).

Also more difficult understanding of this basis, its expensive use, and difficulty in using the accrual basis are considered as the defects of accrual accounting Christianes and Reyniers, 2009).

As mentioned earlier, one of the reasons for using the basis of accrual accounting is providing a needed circumstance for operational budgeting. This budgeting system first was used by the USA army (Aardekani et al., 2010). As a matter of fact, operational budgeting is a concept that connects the performance information to the budget (Marc and Jack, 2005).

Now a general question comes up whether the advantages of implementation of accrual accounting in Guilan's medical science university can be more than the advantages of accounting based on cash? Or because lack of readiness of custodian organizations for governmental accounting in Iran, this plan is faced fail and nothings remains for the managers of university and treasury except heavy expenses for performing this system (Tudor & Mutiu, 2005).

2. MATERIAL AND METHODOLOGY

The present study has been carried out using survey and field method and is one of functional-analyzing type. To collect information in this study, questionnaire has been used which consist of general questions and 33 technical ones in which answers have been specified as sorted out five-option Likert spectrum, and individuals mark the appropriate answers according to the intensity of effect and orderly and scores considered for each question is put in a spectrum from + 1 to + 5 ($1 \leq x \leq 5$).

The thematic realm of the research is to evaluate the benefits of modern finance system establishment (accrual accounting) in Guilan's medical university and local realm of this research is Guilan's science university and its temporal realm is the range of 5 years from 1387 to 1392.

Statistical society of this research includes members of the board of trustees, financial tribunal auditors, auditors of board of trustees, directors and experts of financial affairs of Guilan's medical science university (Table 1).

Group random sampling has been applied to choose samples. The number of needed sample to carry out this study was calculated using Cochran's formula at significant level 95% and sampling error of 5%, are 158 people.

$$=158$$

$$n = \frac{269 \times (1.96)^2 \times (0.5 \times 0.5)}{(269 - 1)(0.05)^2 + (1.96)^2 \times (0.5 \times 0.5)}$$

$$= \frac{N \times (Z_{\alpha/2})^2 \times pq}{(N - 1)(\epsilon)^2 + (Z_{\alpha/2})^2 \times pq}$$

After determining the sample volume, questionnaires were distributed and collected in the way of proportion partition (Table 2).

In order to credit the measuring tools (validity), questions of the questionnaire were corrected in several stages according to the experts' opinions.

To check of the reliability of the research questionnaire, coefficient of Cronbach's alpha has been applied. To do this, 30 questionnaires were distributed and collected first. Then, by using the SPSS Cronbach's alpha software, questions were obtained in which the test statistic was 96% for all assumptions. Therefore, the research questionnaire has the proper reliability (Table 3).

To check out the normality of collected data at 95% confidence level, Kolmogorov-Smirnov test, and to test each hypothesis one sample t-test (comparison of integrated questions average with assumed average of 3), and also SPSS software are used to analyze data.

3. RESULTS

To enter data analysis stage, descriptive and demographics statistics of respondents are initially calculated, extracted data from demographics and public answer of questionnaire shows

Table 1: The study population

| Group | Number |
|---|--------|
| Board of Trustees of the University | 10 |
| Auditors of Audit Court based in the University | 2 |
| Auditors Board of Trustees of the University | 5 |
| Finance and accountants managers in the subsidiary of University | 52 |
| Experts finance, warehousing and Supplier Institute of Medical Sciences who have been necessary training in the field of accrual accounting | 200 |
| The total population of the study | 269 |

that 90.5% of respondents who have relevant college degree and 96.8% of them are familiar with governmental accounting and 99.4% with accrual accounting. So with regard to obtained result from demographics data, most respondents are specialists and familiar accounting system of Guilan's medical sciences university (Table 4).

Analyze answers related to existence or nonexistence of running and implementation advantages of accrual accounting system at Guilan's medical sciences university shows that almost 86.1% of respondents believe in the existence of running and implementation advantages of accrual accounting system at Guilan's medical sciences university (Table 5).

To survey the normality of research variables, Kolmogorov-Smirnov test was carried out for each hypothesis and the test results have showed the normality of data (Table 6).

In the following to analyze effect rate of accrual accounting basis implementation in the accounting system of Guilan's medical science university upon the research variables was carried out on each hypothesis of T Student tests research. Results are indicator of confirmation the research. In other word, accrual accounting implementation could express the costing of services and activities more clearly and make the operational budgeting implementation plausible and causes to increase the capability of managers' accountability, and the information resulting from accrual accounting bias could lead to managers' optimum decisions-making as well. Ultimately, it was specified that the value of output

information resulting from accrual accounting system is more than the cost of this system establishment (Tables 7-9).

Having collected the questionnaires and carrying out the hypothesis tests, another question raised to the researcher was that.

In terms of priorities, is there any significant different between the mentioned advantages in hypothesis of research?

This question was answered using Friedman rank test (X^2), and null and opposite hypothesis was explained as follows:

H_0 : In terms of priorities, there is no meaningful difference between discussed advantages in the research hypotheses.

H_1 : In terms of priorities, there is a meaningful difference between discussed advantages in the hypotheses of research.

Results revealed that the advantage of helping to managers to make proper decisions has had the most rank-based averages and it can be concluded that using information resulting from accrual accounting in making proper decisions for managers has more priorities in opinion of respondents comparing other discussed advantages in hypotheses of this research (Table 10).

4. DISCUSSION AND CONCLUSION

The present study has been carried out so as to evaluate the advantages of accrual accounting system implementation in Guilan's

Table 2: Situation of distributed questionnaire

| Group | N | n | Lack of returned | Returned | |
|---|-----|-----|------------------|------------|----------|
| | | | | Incomplete | Complete |
| Board of Trustees of the University | 10 | 6 | - | - | 6 |
| Auditors of Audit Court based in the University | 2 | 1 | - | - | 1 |
| Auditors Board of Trustees of the University | 5 | 3 | - | - | 3 |
| Finance and accountants managers in the subsidiary of University | 52 | 31 | - | - | 31 |
| Experts finance, warehousing and Supplier Institute of Medical Sciences who have been necessary training in the field of accrual accounting | 200 | 117 | - | - | 117 |
| Sum | 269 | 158 | - | - | 158 |

Table 3: The main variables of research and its components (Cronbach's alpha)

| Variables | Cronbach's alpha | Results |
|--|------------------|------------|
| Total of questions | 0.96 | Acceptable |
| Implementation of accrual accounting can express the cost of services and activities more transparent | 0.777 | Acceptable |
| Implementation of accrual accounting, provides the possibility of implementing Performance Budgeting | 0.838 | Acceptable |
| Implementation of accrual accounting increases capability of the managers' accountability | 0.905 | Acceptable |
| Information resulting from accrual accounting principles can help managers' optimize the decision-making | 0.862 | Acceptable |
| Information output value resulting from accrual system is more than its establishment costs | 0.849 | Acceptable |

Table 4: Information of the respondents' demographics

| Title | Field of study | Degree of education | Long experience |
|-------------------------------------|----------------|---------------------|----------------------|
| Auditor of Audit Court | 1 Accounting | 107 Associate | 26 0-5 years |
| Auditor of Trustees Board | 3 Management | 31 Expert | 107 5-10 years |
| Financial Director/Chief Accountant | 31 Economy | 5 Master of Science | 19 10-15 years |
| Finance Officer | 117 Other | 15 PhD | 6 More than 15 years |
| Board of Trustees | 6 | | |
| Total | 158 | 158 | 158 |

medical science university. In this study, applying accrual accounting system has been considered from five aspects: Improvement of the responsibility level of managers, facilitating operational budgeting provision and collecting, calculation and total cost elaboration of services and activities, improvement of managers' decision-making and also the value of output information resulting from accrual accounting towards the cost of this system establishment.

According to the given answers by respondents to the technical questions of the research and also using suitable statistical techniques for checking the accuracy of hypotheses, results below were obtained.

The obtained results from the first hypothesis test show that, execute and accrual accounting system implementation in Guilan's medical science university can affect the specified factors in questions related to the first hypothesis which includes more accurate total cost of the educational services for each student, more exact measurement of each patient treatment's total cost, more exact measurement of total cost of services assignment to private parts, determining the total cost of university researches, allocating an overload based on activity and the total cost calculation of each person of the society.

Table 5: People responds about the benefits of accrual accounting

| Title | Frequency (%) | Percent of net | Percent of cumulative |
|------------------|---------------|----------------|-----------------------|
| No | 12 (7.6) | 8.1 | 8.1 |
| Yes | 136 (86.1) | 91.9 | 100 |
| Sum | 148 (93.7) | 100 | |
| Without response | 10 (6.3) | | |
| Total sum | 158 (100) | | |

Table 6: The results of the test (K-S)

| Title | Increases the value of information of system | Optimal management decisions | Ability accountability of managers | The possibility of implementing performance budgeting | Clear statement cost of services and activities |
|----------------------|--|------------------------------|------------------------------------|---|---|
| N | 158 | 158 | 158 | 158 | 158 |
| Average | 3.696 | 3.84 | 3.78 | 4.11 | 3.865 |
| Std | 0.617 | 0.632 | 0.627 | 0.67 | 0.623 |
| Absolute | 0.119 | 0.08 | 0.123 | 0.14 | 0.136 |
| Positive | 0.096 | 0.059 | 0.075 | 0.09 | 0.06 |
| Negative | -0.119 | -0.08 | -0.123 | -0.14 | -0.136 |
| Kolmogorov-Smirnov Z | 7.095 | 1.009 | 1.045 | 1.08 | 1.013 |
| Significant | 0.123 | 0.261 | 0.117 | 0.104 | 0.103 |

Table 7: H₀ hypothesis and H₁ hypothesis

| Hypothesis | H ₀ | H ₁ |
|------------|--|--|
| 1 | Execution accrual accounting cannot elaborating on the total cost of services and activities | Execution accrual accounting can elaborating on the total cost of services and activities |
| 2 | Execution accrual accounting does not make implementation of operational budgeting feasible | Execution accrual accounting makes the implementation of operational budgeting feasible |
| 3 | Execution accrual accounting does not increase the capability of managers' accountability | Execution accrual accounting increases the capability of managers' accountability |
| 4 | Information due to accrual accounting basis can lead to managers optimum decision-making | Information due to accrual accounting basis cannot lead to managers' optimum decision-making |
| 5 | output informational value due to accrual accounting system is not more than the cost of this system's establishment | output informational value due to accrual accounting system is more than the cost of this system's establishment |

Therefore, it can be concluded that the accrual accounting system implementation at Guilan's medical science university can cause to elaborate on the services and activities of the university's total cost.

The results obtained from the second hypothesis test indicates that the execution and implementation of accrual accounting system in Guilan's university of medical science can affect specified factors in questions related to the second hypothesis consisting: Facilitating the creation of operational budgeting of the university, elaborating on the operational budgeting for each student, assist in explaining the standard of operational budgeting of research-based credits of the university, increasing the efficiency and effectiveness of operational budgeting in health department, more elaborative expressing about the operational budgeting performance of the university and elaborating on operational budgeting for each bed of a patient in the treatment department of the university.

Thus, it could be concluded, execution and implementation of accrual accounting system in Guilan's Medical Science University can facilitate providing and elaborating operational budgeting of the university.

Results obtained from third hypothesis test suggests that execute and implementation of accrual accounting system at Guilan university of medical science can be effective at determined factors in questions related to third hypothesis which are different aspects of responsibility such as public responsibility, operational responsibility, financial responsibility, political responsibility, professional responsibility, legal responsibility, social responsibility, managing responsibility.

Thus, it can be concluded that execute and implementation of accrual accounting system in Guilan's medical science university can improve the responsibility level of managers.

Results obtained from forth hypothesis test suggests that execute and implementation of accrual accounting system in Guilan university of medical science can affect determined factors in questions related to forth hypothesis including: Being effective on future managers decision making, improvement of managers decision making, helping in prioritize to achieve the comprehensive managerial information and elaborating financial statements of the university to evaluate the managers.

Thus, it can be concluded that execute an implementation of accrual accounting system in Guilan's medical science university can improve the decision making of managers in the university using information resulting from this accounting basis.

Results obtained from the fifth hypothesis test show that execute and implementation of accrual accounting system in Guilan university of medical science can affect determined factors in related questions to fifth hypothesis including: Advantages ratio of accrual accounting toward expenses of establishment of this system, ratio of output information value of this basis toward its establishment expense, evaluate the effectiveness of university performance, amount of increased advantages toward the expense of information resulting from accrual accounting basis in primary qualitative features (being related, dependability) in comparison with cash accounting system and also amount of increased advantages toward the cost of information resulting from accrual accounting basis at secondary qualitative features (comparability, sameness) in comparison with cash accounting system.

Thus, it can be concluded that value of output information resulting from execute and implementation accrual accounting system in Guilan's university of medical science, is more than the cost of establishment of this system.

Table 8: Mean and standard deviation hypotheses

| Variables | N | Mean±SD | Standard of error |
|---|-----|-------------|-------------------|
| Increases the value of information of system | 158 | 3.696±0.617 | 0.049 |
| Optimal management decisions | 158 | 3.84±0.623 | 0.05 |
| Ability accountability of managers | 158 | 3.785±0.627 | 0.049 |
| The possibility of implementing performance budgeting | 158 | 4.113±0.673 | 0.053 |
| Clear statement cost of services and activities | 158 | 3.865±0.623 | 0.0496 |

Table 9: Single-sample T-test

| Title | T | Df | Significant | Mean difference | 95% confidence interval for mean difference | |
|---|--------|-----|-------------|-----------------|---|---------|
| | | | | | Minimum | Maximum |
| Increases the value of information of system | 14.166 | 157 | 0.000 | 0.696 | 0.599 | 0.793 |
| Optimal management decisions | 16.699 | 157 | 0.000 | 0.84 | 0.741 | 0.94 |
| Ability accountability of managers | 15.741 | 157 | 0.000 | 0.785 | 0.685 | 0.884 |
| The possibility of implementing performance budgeting | 20.8 | 157 | 0.000 | 1.113 | 1.008 | 1.219 |
| Clear statement cost of services and activities | 17.426 | 157 | 0.000 | 0.864 | 0.766 | 0.963 |

The results obtained from this research and its background such as Shanazari researches (Shanazari, 2009; Zarei, 2010; McPhee, 2006; Seguin, 2008; Upping and Oliver, 2011), also the experience of countries like America, Canada, England and Australia, at successful implementation of accrual accounting strengthen this idea that, in spite of relatively loss of accrual accounting and due to its more advantages in comparison with cash basis, implementation of accrual accounting seems essential in public section and applying this system in public section can help the government to reach its goal based on an attempt to improve social and spiritual welfare of all citizens through the improvement of performance in consuming the sources. Thus, it is recommended that full accrual accounting systems should be implemented in financial and reporting affairs of Guilan's university of medical science in the meanwhile to enjoy other inherent accrual accounting advantages such as identification and registration of assets report, equipment and other precivable and imprecivable assets, registration and reporting treatment units demands from insurer organizations, elaboration of deficit of the university with the help of registering and reporting medicinal and personnel debts and etc. It has provided requirements in field of present budgeting change of university to operational budgeting, and will lead to assemble transformation in establishments and organizing and reaching the organizational goals and legislator's goals in fourth and fifth plans of development.

5. ENCLOSURES

H_0 : The data are normally distributed.

H_1 : The data aren't normally distributed.

The calculated amount is more than the level of 0.05. The H_0 hypothesis has been confirmed and data have normal distribution. Therefore, in the 95% confidence level data have normal distribution (Table 4).

T uni-sample method has been used to examine the research's hypotheses (comparison of mixed average of questions with the assumed average 3).

To carry out the present examination, H_0 hypothesis and H_1 hypothesis are discussed as Table 7.

5.1. Test Judgement

As respects the calculated tests' static of all hypotheses is higher than the critical point of T table (equals 2.33). Thus, H_0 is rejected and it can be said that all hypothesis are significant.

Table 10: Friedman test results

| Indicators | The average rank | Rank |
|---|------------------|------|
| Optimal management decisions | 3.9 | 1 |
| Increases the value of information of system | 3.05 | 2 |
| The possibility of implementing performance budgeting | 2.98 | 3 |
| Ability accountability of managers | 2.72 | 4 |
| Clear statement cost of services and activities | 2.35 | 5 |
| The critical point | 9.49 | |
| Value of calculated statistic | 88.81 | |
| Df | 4 | |
| Significant | 0.000 | |

As a result, considering that H_0 is rejected. Hence, we can say that based on the respondents' opinion, execution of accrual accounting can: Elaborating on the total cost of services and activities. make the implementation of operational budgeting feasible. Increases accountability ability of managers. Information due to accrual accounting basis can lead to optimum decision-making of managers. Output informational value due to accrual accounting system is higher than its establishment cost.

6. TEST'S STATISTIC

$$\chi^2 = \frac{12}{kn(K+1)} \sum_{j=1}^K R_j^2 - 3n(k+1)$$

Critical area in Friedman test are the points higher than 9/49 for the level of 95% confidence, and the degree of freedom and test statistic's value are 4 and 88/81 in order. Therefore, the obtained results from SPSS software for this test are as Table 10. According to this test the statistic (88/81) is located in region of H_0 rejection (points higher than 9/49). Thus, with 95% confidence H_0 hypothesis is rejected and H_1 hypothesis is confirmed. Thus, it is claimed with 95% confidence that in terms of priorities, there is a meaningful difference among five advantages of accrual accounting in this research.

REFERENCES

- Aardekani, S., Shahi, T., Farjam, R., Mousanejad, F. (2010), Operational budgeting and its challenges in Iran. *Quarterly Periodical of Formal Accounting*, 20, 141-146.
- Babajani, J. (2006), *Accounting and Public Financial Controls*. 3rd ed. Tehran: Publication of Allame Tabatabaei University.
- Christians, J., Reyniers, B. (2009), Impact of IPSAS on Reforming Governmental Financial Information Systems: A Comparative Study. Working Paper, Belgium, Ghent University.
- Hillman, N., Collony, C. (2011), Accruals accounting in the public sector: A road not always taken. *Management Accounting Research*, 22, 36-45.
- Marc, R., Jack, B. (2005), Does Performance Budgeting Work? An Analytical Review of the Empirical Literature; 2005. Available from: [http://www.sgb.gov.tr/en/strategic management/document/pdf](http://www.sgb.gov.tr/en/strategic%20management/document/pdf). [Last accessed on 2009 Dec].
- McPhee, I. (2006), Financial management in the public sector: How accrual accounting enhances governance and accountability. CPA Australia Public Sector Finance and Management Conference, 17, August.
- Robinson, M. (2002), Accrual Accounting and the Public Sector. Working Paper, School of Economics and Finance Queensland University of Technology.
- Seguin, K.L. (2008), Accrual accounting implementation in the Canadian federal government. A Thesis Submitted to the Faculty of Graduate Studies and Research in Partial Fulfillment of the Requirements for the Degree of Master of Business Administration. Sprott School of Business, Ottawa, Ontario, Carleton University.
- Shanazari, M. (2009), Evaluating Accrual Accounting System Usage Instead of Cash System and Introducing a General Solution for Executing it in Isfahan Province Municipality, MA Thesis.
- Thomas, H.B. (2007), Does Full Accrual Accounting Enhance Accountability? *The Innovation Journal The Public Sector Innovation Journal*, 12(3), 1-18.
- Tudor, T., Mutiu, A. (2005), Cash versus accrual accounting in public sector. *Studia Oeconomica*, 1, 36-51.
- Upping, P., Oliver, J. (2011), Accounting change model for the public sector: Adapting luder model for developing countries. *International Review of Business Research Papers*, 7(1), 364-380.
- Zarei, B. (2010), *Conceptual Framework of Governmental Accounting*. Hesabras Publication. No. 51.