

The Feasibility of the Establishment of Accrual Accounting System Using Shah Model in the Municipalities of Semnan Province

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Abstract: Municipalities, like any other businesses, require access to detailed information about each of their services to determine the price of their services in the form of various taxes and to evaluate their performance at the end of any period. One of the ways to achieve this goal is to use accrual accounting system. So the aim of this study is to evaluate the feasibility of the establishment of accrual accounting system with Shah Model in Semnan Province municipalities. In the Shah Model feasibility of the establishment of accrual accounting, investigated based on three dimensions, ability (performance assessment, human resource, technical), authority (legal, procedural, organizational) and acceptance (political, managerial, motivational). Data from this study were collected through questionnaires in 1394. Analyzing the findings of this study showed that at the certainty level of 95% there were the required ability, authority and acceptance to establish accrual accounting system in the municipalities of Semnan Province.

Key words: Accrual accounting, ability, authority, acceptance, Shah model, the municipalities of Semnan Province

INTRODUCTION

There are crucial differences between accounting system and governmental financial reporting and accounting system and financial reporting of for-profit units. The differences come from the effects of the context on the activities of these two organizations. Government and independent non-profit organization like municipalities carry out two completely different activities, governmental or non-commercial activities and commercial activities. Environmental features of each of these two kinds of activity influence the aims of financial reporting of the government. Financial reporting, as a form of transferring data publically, plays a crucial rule in the task of government accountability and is the main tool for this important task. Financial reporting as a tool of accountability, provides information for citizens through which they evaluate the government performance within the limits of law (Babajani and Heydariyan, 1394). Through implementing policies of self-sufficiency in the sixties of solar year, received taxes were the main source for supplying municipal spending. Since, determining the revenues and real costs of a financial period is important in carrying out the accountability task and assessing this task with citizens and their legal representatives, so the ways of identifying and measuring municipal revenues and costs is also of significant importance. On the one hand, the difficulties and deficiencies of cash basis accounting in financial reporting of public sector

institution revenues like municipalities and difficulties to achieve to the full accrual basis accounting system on the other hand have led most of the developed countries to consider accrual basis in accounting and financial reporting of the public sector institution revenues especially in municipalities.

Given that in municipalities, like other public organizations and institutions, accrual basis accounting system has not been established yet so most of the experts and managers of this organizations have not had complete information about it. Also, since a proper final cost system has not been established, it is not feasible to determine the correct sale price of the municipality services (Mortezapour, 1394). So, one of the motivations of this study is to assess the feasibility of the establishment of the accrual accounting system in municipalities as an example of public institutions.

Theoretical foundation of the study

Public sector accounting system: Until the 1980s, all countries used cash basis for reporting in the public sector. In that time several worldwide concerns were developed in relation to the government performance. Some of them are as follows:

- The need to increase transparency and accountability to citizens about government activities
- The growth rate of the government activities
- Massively increasing government debt

Therefore, some changes were developed to cause a revolution to happen in the accounting and public sector reporting. So, some institutions for developing accounting standards of public sector were created in the developed countries (ex. Governmental Accounting Standard Board in the US. (GASB). One of the initial actions of these institution was to change the cash basis reporting model.

Cash basis accounting is an accounting system that is based on receiving and paying cash. In other words in this system every change in the financial status of the institution requires cash exchange. In this system the revenues are recognized and registered when their cash is paid. So this system focuses on the cash flows of a reporting period. This kind of accounting ignores the flows of other resources that influence the ability of the units for providing goods and services in the present or future. Also this cash basis ignores the interest of the assets in several accounting periods. Therefore, the information of cash basis accounting can be irrelevant for decision makers. Cash basis accounting limits the ability of the citizens in measuring accountability of the government when they use the resources (Babajani, 1393).

In the full accrual basis, revenues are identified and reflected in the accounting books when they are gained or recognized. In this basis, the time of gaining and recognizing of revenues is when they are definitely identified and/or they are gained by providing of services. Therefore, the time of cash reception is not considered but gaining and recognition of the revenues is important in identifying and recording the revenues. In this basis identifying and recording expenses is the creation time or hosting time of expenses. Only accrual basis can provide information on the cost of goods and services that is vital for decision making and implementing financial and operational accountability (Babajani, 1393). Accrual basis reporting helps government and public institutions realize the system of management based on the results and resources management. On this basis due to the providing final information of the cost of goods the performance of such organizations is measurable. Government and large public sector institutions, depending on the case, tend to show their financial status performance better or worse than what it is. Accrual basis reporting causes financial transparency, truthfulness, reliability of financial reporting and realization and promotion of the task of financial and operational accountability (Hesaraki, 1388).

Reporting system in municipalities: Over the past three decades, according to developments in the field of citizens' awareness of their social rights and their increasing demands on seeking for answer from their

elected officials, authorities in countries with democratic political regime seeking for a solution about finding the right tools to perform their public accountability task. Through this political process and acceptance of the concept of accountability as one of the most important rights of citizenship who are in the position of rightful owners, accounting and financial reporting in the public sector was also put into focus and as an important tool for accountability plaid an important role in socio-political activities. Although, the latest developments in the late twenty of century, especially Statement 34 enacted in accounting standards board of the US overnment, recommended using the full accrual basis in such institutions the application of these accounting basis for identifying and recognition of revenues is merely done for reflecting the capacity of public sector institutions like municipalities and these institutions' decision making about allocating funds and doing expenses is still based on revenues that are adjusted by the accrual basis, identified in independent accounts and reflected in financial statements (Babajani and Fereydooni, 1385).

Public sector institutions of Iran such as government and subordinate units, municipalities and institutions of the Islamic Republic Revolution are under the influence of environmental factors and certain rules that despite having remarkable similarities with similar institutions in other countries have relatively large differences such as the political system, the structure of power , funding and governmental activities.

Excessive role and contribution of such institutions in the public economy and the government's excessive reliance on profits from oil sales make them different in many respects from similar institutions in other countries. Accordingly, the use of accounting standards approved by the standard-setting boards of other countries cannot be consistent for Iran public sector. According to this necessity, Tehran municipality from 1388 has taken action to develop a theoretical framework for principles of accounting and financial reporting in municipalities. Accordingly, made it necessary the financial reporting of municipalities based on two level independent accounts and level of the financial reports of municipality and comprehensive reports of the municipality and the city (Babajani and Heydariyan, 1394).

Shah model: Different models have been developed in order to determine the feasibility of the establishment of the operational budgeting and accrual accounting system. Shah model is one of the best-known ones. The model is used for assessing the feasibility of the establishment of operational budgeting, costing of the activity and accrual accounting in different researches. The model emphasizes

on three factors affecting the implementation of accrual accounting system including the ability, authority and acceptance that are described as follows.

Ability is the first aspect of the Shah model that includes three factors; ability to measure the performance, human resources ability and technical ability. The ability to measure the performance has impact on all stages of the implementation of accrual accounting system. In order to implement appropriate accrual accounting system, information obtained from the measuring performance should be used in the management, decision making, allocating resources and designing incentive programs. The studies emphasize on the importance of being sure about human and technical abilities to implement accrual accounting system (Moradi *et al.*, 1391).

The required human resources must have certain skills in measuring performance and maintaining and managing databases. In the executive and legislative organizational units, there should be experts in the field of performance goal setting and also in making communication between users of the performance information. Organizations in line with implementing operational budgeting are required to develop their abilities in identifying and measuring performance and using of performance information in a constructive way. In addition, specific technical requirements should be prepared for gathering performance information and creating data bank through which the immediate performance information is prepared in the appropriate forms and a variety of users. Database must be coordinated with a various range of other systems to provide the basis for accounting, monitoring and reporting in the government.

The second aspect of the model that is effective in implementation of accrual accounting system is the mechanisms of authority delegation in the governments. If the experts do not have the necessary authority in implementing accrual accounting system or in its process, implementation will be faced with a problem. There are three important dimensions of the authority including legal, procedural and organizational authority (Moradi *et al.*, 1391). Formal processes of budgeting is often intensively legalized and the new reforms in case of conflict with these laws, cannot be implemented (Foltin, 1999). The measurement of performance and potential use of performance information is often neglected in the existing budget processes. The characteristic of existing processes is formal procedures that as a rule, requires budgeting behavior. Successful implementation of reforms requires the reform model to be consistent with these rules and procedures (Xavier,

1198). The organization lines of authority is effective in implementation operational budgeting, especially when you are going to use performance information.

The third aspect of the model that is effective in the implementation of accrual accounting system is “acceptance” resistance to reforms on the part of some officials and employees may be the biggest obstacle to the implementation and use of performance measurement. If the accrual accounting system is accepted by this groups it will be most likely implemented. In order to implement accrual accounting system successfully the authorities, managers and employees should be persuaded that this system is trying to cut expenses and gain short term and long term benefits for both government and the society three aspects of “acceptance” is needed: the political acceptance, managerial acceptance and motivational acceptance. The acceptance of political authorities in supporting and providing financial resources to implement operational budget is vital. While performance measurement and the use of performance information has consequences for elected and assigned authorities a number of experts emphasize that politicians often resist against the use of performance information in the allocative decision making because such information makes them more vulnerable in front of people. It is especially seen in the long term plans that may not have good consequences in short term (Moradi *et al.*, 1391).

In general, shah model examines the following eight factors for the establishment of the accrual accounting system (Fig. 1).

Empirical background of the research: Mortezapour (1394) did a study as using activity-based costing system in Mashhad Municipality. The results show that it is possible to establish activity-based costing system in the

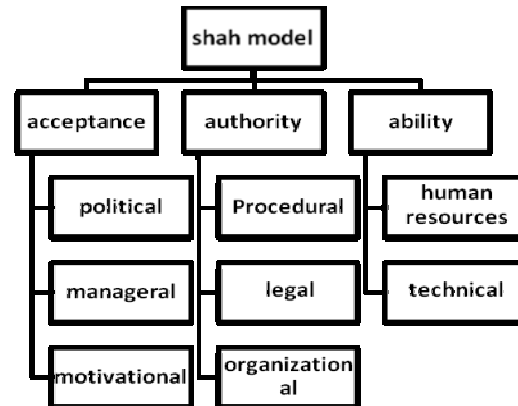


Fig. 1: Shah model

municipality of Mashhad and its experts and managers are familiar with the system and its benefits. Also there are significant differences in the final cost of Mashhad Municipality services comparing activity-based costing system and traditional costing system.

Zeinali *et al.* (1392) and colleagues did a research with using Shah Model titled as the barriers to implementing operational-based budgeting in the Ministry of Economic Affairs and Finance. A total of 288 of managers, vice managers and experts of the Ministry of Economic Affairs and Finance have been chosen in simple random sampling and responded to questionnaire of the research. The results showed that among the three major variables 2 variables, i.e., “acceptance” and “authority” are barriers to the adoption of operational budgeting. And the ability to measure performance, the procedural authority, organizational authority and managerial acceptance are among the secondary variables that are considered as barriers.

Moradi *et al.* (1391) did a research titled as the feasibility of implementation of operational budgeting based on Shah Model in the municipality of Shiraz. Accordingly, for assessing the feasibility of implementing operational budgeting, a questionnaire was prepared and a model for the feasibility of implementing operational budgeting have been provided. The results of the study based on Shah model and in relation to the three dimensions of ability, i.e., performance evaluation, human resources and technical ability were negative. In relation to the three dimensions of authority legal, procedural and organizational authority there is appropriate authority in Shiraz municipality. The results show that the implementation of operational budgeting would be more economical in the city of Shiraz.

Mahdavi and Saman (1390) did a research as the possibility of implementing accrual basis in municipalities. The population was the municipalities of the provinces of Fars and Kermanshah. Their findings indicate that there is a suitable platform for the implementation of the accrual basis in the municipalities. In other words the findings reflect the fact that at present time there are necessary and sufficient conditions for using the accrual basis in order to create a development in the accounting of these institutions.

Fattahi and Fattahi (1391) did a research to study the barriers to implementing operational budgeting system in the Municipality of Qom and provided necessary solutions. The results of this study show that the problems of the establishment and implementation of operational budgeting in Qom municipality is related to the management factors. And studying the factors of this hypothesis it can be concluded that the human resources

of the Municipality of Qom in budgeting expertise, facilities and records is not at an acceptable level.

Cabannes (2015) did a research to study the impact of participatory budgeting in public service, municipal activities and its evidence. He took information of about 20 municipalities from different countries and came to the conclusion that participatory budgeting improves public and management services in the municipalities.

Capusneanu *et al.* (2013) did a research titled as the deployment of activity-based budgeting in Romania’s mining companies. The results showed that the activity-based budgeting is feasible in the mining companies. Also results showed that activity-based budgeting provides more useful information than traditional budgeting and there is a significant difference between the two methods of budgeting.

Frow *et al.* (2010) did a study titled as the adaptation of flexibility of the budget to budgetary control. Results showed that the integrated budgeting approach is used to describe the ways in which an organization seeks to adapt to conflicting goals. In the integrated budgeting, different applications of budgeting with management control encourage other managers to use their own discretion on operational issues. Thus, it enables managers to prioritize and review programs in order to achieve organizational goals.

King *et al.* (2010) did a research titled as assessing the ways of budgeting and performance in the small treatment businesses. Their results showed that systematic budgeting associated with the size and structure. And for businesses to be able to use and develop this systematic budgeting they should consider its relationship with the structure, strategy and lack of perceived environmental uncertainty. More improvement in proportionality tests is between the possible factors of business and the use of operational budget.

MATERIALS AND METHODS

This study in terms of purpose is an applied research and in terms of data collection is a descriptive study. According to the applied nature of the study, field research techniques, descriptive-survey method and t-test were used. The data for this study were collected through field study and using questionnaires. To determine the feasibility of implementing accrual accounting system in the municipality of Semnan Province a questionnaire has been prepared. The questionnaire is in the form of thirty questions that assesses the feasibility of the establishment of the accrual accounting by measuring three factors: ability, authority and acceptance.

Table 1: Information related to the respondents experience and qualification

Qualification			Experience		
Qualification kind	Frequency of the valid option (%)	Accumulative frequency (%)	Job experience	Frequency	Frequency (%)
Diploma	7	8.7	<5 years	8	10
Associate degree	11	13.8	5-10 years	20	25
Bechalor	47	58.7	10-15 years	24	30
Master and higher	15	18.7	>15 years	28	35
Total	80	100.0	Total	80	100

Hypotheses:

- The main hypothesis in the municipalities of Semnan Province there is the required ability for implementing accrual accounting
- Sub-hypothesis in the municipalities of Semnan Province there is the required human resources ability for implementing of accrual accounting
- Sub-hypothesis in the municipalities of Semnan Province there is the required technical ability for implementing accrual accounting
- The main hypothesis in the municipalities of Semnan Province there are the required authorities for implementing accrual accounting
- Sub-hypothesis in the municipalities of Semnan Province there are the required procedural authorities for the implementing accrual accounting
- Sub-hypothesis in the municipalities of Semnan there are required legal authority for the implementing accrual accounting
- Sub-hypothesis in Semnan Province municipalities there are the required organizational authority for implementing accrual accounting
- The main hypothesis in the municipalities of Semnan Province there is the required acceptance for implementing accrual accounting
- Sub-hypothesis in the municipalities of Semnan Province there is the required political acceptance for implementing accrual accounting
- Sub-hypothesis in the municipalities of Semnan Province there is the required managerial acceptance for implementing accrual accounting
- Sub-hypothesis in the municipalities of Semnan Province there is the required motivational acceptance for implementing accrual accounting

The population and sample: The study population included all experts and managers in administrative and financial units of the municipalities of the province of Semnan. This study in terms of the time scope is a cross-sectional study and it assesses the gathered data through questionnaires in 1394. The spatial domain of the present research is the municipalities of Semnan Province. Given that the study population is municipality of Semnan Province. So, the sampling is not required and

Table 2: The results of the normality test of the research hypotheses

Hypotheses	Sub hypotheses	Statistic	Significance level
First main hypothesis	First sub hypothesis	0.973	0.301
	second sub hypothesis	0.667	0.765
Second main hypothesis	first sub hypothesis	0.945	0.334
	second sub hypothesis	1.052	0.219
	third sub hypothesis	1.059	0.212
Third main hypotheses	First sub hypothesis	0.986	0.285
	second sub hypothesis	0.876	0.426
	third sub hypothesis	0.900	0.393

questionnaires are distributed among all financial and administrative experts and managers of municipalities in Semnan Province. A total of 80 questionnaires distributed among and collected from these individuals.

Reliability and validity: After determining the validity by experts in order to evaluate the reliability of the questionnaire, a total of 20 questionnaires at the beginning and at the experimental stage were distributed and collected between the populations. After data analysis, reliability coefficient was calculated 0/84 which is >0/70 and determines the reliability is acceptable.

Demographic statistics: The 35 of the respondents were females and 45 were males. The results of demographic statistics of the respondents based on the experience and qualification are shown in Table 1.

Data normality test: Kolmogorov-Smirnov test for normality of the data is used. The results of this test are as Table 2.

If the calculated significance level of the test is >0/05 it represents the normality of the data. According to the Kolmogorov-Smirnov statistic's significance level in all three hypotheses is <0/05 so, these three hypotheses are normally distributed.

RESULTS AND DISCUSSION

Hypothesis testing and interpretation of results: In this study, we test the hypotheses on the purpose of the study.

The test results of the first main hypothesis: In the first main hypothesis the feasibility of the establishment of the accrual accounting system in the municipality of Semnan Province is evaluated from the dimension of “ability”. The first main hypothesis has two sub-hypotheses. Its results of the statistical analysis are as follows.

According to the results presented in Table 3, it becomes clear that a significant level of both hypothesis is <5% and the average responses in the two sub-hypotheses is >3. Therefore, both hypotheses is confirmed. It can be concluded that in confidence level of 95%, there are the required human resource and technical ability in Semnan Province municipalities for implementing accrual accounting. Given that both sub-hypotheses of the first main hypothesis were confirmed so the first main hypothesis is also confirmed. We can say that in Semnan Province municipalities there is the required ability for implementing accrual accounting.

The test results of the second main hypothesis: In the second main hypothesis, the feasibility of the establishment of the accrual accounting system in the municipality of Semnan Province will be evaluated from the “authority” dimension. The second main hypothesis has three sub-hypotheses. Its results of the Statistical analysis are as follows.

According to the results presented in Table 4 it becomes clear that all three sub-hypothesis significance level are <5%. And the responses’ mean is >3 in the all three sub-hypotheses. Therefore, all three sub-hypothesis is confirmed. And it can be concluded that at 95% confidence level in Semnan Province municipalities we have the required procedural, legal and organizational authority to implement accrual accounting. Given that all three sub hypotheses related to the second main hypothesis have been confirmed so second main hypothesis is also confirmed. We can say that in Semnan Province municipalities the required authorities to implement accrual accounting exist.

The test results of the third main hypothesis: In the third main hypothesis feasibility of the establishment of the accrual accounting system in the municipality of Semnan is evaluated from the “acceptance” dimension. The third main hypothesis has three sub-hypotheses. It results of the statistical analysis are as follows.

According to the results presented in Table 5 it is determined that the significance level for all three sub-hypothesis is <5%. And the mean of the responses is >3 in all three sub-hypotheses. Therefore, all three sub-hypotheses are confirmed. And it can be concluded

Table 3: Analysis results of the first main hypothesis

Variables	Mean	SD	t-values	Significance level
Human resource ability	3.30	0.630	2.70	0.010
Technical ability	3.73	0.460	6.89	0.000

Table 4: Analysis results of the second main hypothesis

Variables	Mean	SD	t-values	Significance level
Procedural authority	3.40	0.496	5.587	0.000
Legal authority	3.54	0.598	6.578	0.000
Organizational authority	3.43	0.501	5.730	0.000

Table 5: Analysis results of the third main hypothesis

Variables	Mean	SD	t-values	Significance level
Political acceptance	3.59	0.497	13.338	0.000
Manageral acceptance	3.77	0.506	7.9810	0.000
Motivational acceptance	3.76	0.426	19.764	0.000

that in confidence level of 95% municipalities in the province of Semnan have the required political, managerial and motivational acceptance for the implementing accrual accounting. Given that all three sub hypotheses about the third main hypothesis have been approved. The third main hypothesis is confirmed. We can say that in municipalities of Semnan Province there is the required acceptance for implementing accrual accounting.

CONCLUSION

In this study, the feasibility of the establishment of the accrual accounting system with the Shah model in the municipalities of Semnan Province were studied. For this purpose, three main hypotheses have been proposed. In the first main hypothesis the “ability” of the municipalities of Semnan Province for establishment of the accrual accounting system is studied. This hypothesis is composed of two sub-hypotheses. In the first and second sub hypotheses the ability of human resources and the technical ability are studied, respectively. The results analysis shows at the confidence level of 95% both sub hypotheses are confirmed and so the main hypothesis is also approved. Therefore, the municipality of Semnan Province have the required ability to establish the accrual accounting system. In the second main hypothesis, the authority of the municipality of Semnan Province for the establishment of the accrual accounting system is studied. This hypothesis is composed of three sub hypotheses. In the first sub-hypothesis procedural powers in the second procedural and in the third organizational authorities are examined. The analysis results of the second main hypothesis shows at confidence level of 95% all three sub hypotheses and thus the second main hypotheses are confirmed so the main one is also approved. Therefore, Semnan Province

municipalities have the necessary authorities for the establishment of the accrual accounting system. In the third main hypothesis acceptance of Semnan Province municipalities for the establishment of the accrual accounting system is studied. This hypothesis is composed of three sub hypotheses. In the first one political acceptance in the second managerial acceptance and in the third sub-hypothesis motivational acceptance is examined. The analysis of the acceptance test results shows at confidence level of 95% all three sub hypotheses and thus the third main hypothesis are confirmed. So, the municipality of Semnan Province are entitled for the establishment of the accrual accounting system.

The results of the research is consistent with the studies by Mortezapour (1394) and Mahdavi and Saman (1390). The results of Mortezapour (1394) study show that the possibility for establishing activity-based costing system in Mashhad Municipality exists. And experts and managers of Mashhad Municipality are familiar with activity-based costing system and its advantages. And research results of Mahdavi and Mohammadi suggests that there is appropriate platform for the implementation of accrual basis in the municipalities.

The results show if accrual accounting system in the organization is properly implemented and municipalities are well-informed of the cost of their own services and projects, they can set the appropriate base price and outsource part of its own activities. So, by reducing the volume of their activities they can also attract people's satisfaction. So, determining the cost of those services provided by municipalities that its costs are required to be collected from citizens is of very high importance. Establishing such a system to be able to calculate the cost of municipal services will provide useful information for municipalities' management as well as citizens and supervisory bodies. So, municipalities' performance will also be measurable in monetary units. According to the results of the study managers and experts in Semnan Province municipalities have the required ability, authority and acceptance for the implementation of the accrual accounting system.

RECOMMENDATIONS

Therefore, it is recommended to the managers of the municipalities of Semnan Province to act as soon as possible to use the accrual accounting system. And in the meantime, provide workshops and necessary training courses for financial department personnel. So, financial experts will be able to become familiar with accrual accounting concepts and required pre-conditions for the

establishment of the accrual accounting system. Although, the shift from cash accounting system to accrual accounting system may be time-consuming and costly in the 1st years and may face with problems in the implementation, its future benefits offset the costs and considered as the capital of the organization.

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