

The Effect of the Applied Cost System in Jordanian Institution Ports on Management Decisions

Musa Abdel Latif Ibrahim Alnawaiseh¹

¹ Department of Accounting, Faculty of Management and Finance, The University of Jordan, Jordan

Correspondence: Musa Abdel Latif Ibrahim Alnawaiseh, Department of Accounting, Faculty of Management and Finance, The University of Jordan, Aqaba, Jordan. E-mail: m.nawayseh@ju.edu.jo

Received: March 5, 2013

Accepted: April 7, 2013

Online Published: May 23, 2013

doi:10.5539/ijbm.v8n11p94

URL: <http://dx.doi.org/10.5539/ijbm.v8n11p94>

Abstract

This study aims to measure the efficiency of the applied cost system in Jordanian ports, and to know the effect of this system on management decisions; in pricing services, providing new services to customers, measuring performance and controlling it.

Researcher used descriptive and analytical statistic to analyze the responses of responsible in this study, and testing the study's hypotheses.

Researcher found that: The applied cost system in Jordanian ports is efficient, there is no effect of applied cost system in Jordanian's ports on services pricing decision, there is no effect of applied cost system in Jordanian ports on offering new services decision to customers, There is no effect of applied cost system in Jordanian's ports on measuring performance decision, There is no effect of applied cost system in Jordanian's ports on performance control decision, and there is no effect of individuals' characteristics in the sample on perceiving the importance of using the applied cost system in Jordanian's port decisions.

Keywords: cost center, full cost, over head, variable costs, reference price, data characteristics

1. Introduction

Costing department in the Jordanian Institution ports is established in the beginning of the year 1994, after the institution's management perceived the important of this department in offering data to decision makers. The data of the costing department is useful in service pricing, providing new services, controlling performance, and in preparing budgets.

There are five officers in this department. After using computer in the financial department, management used an effective computerized cost system. Cost system is built in cost centers, cost catalog, distributing overhead of assisting department to producing department depending on direct costs basis. Cost department depends on the external and internal documents to record in the journal, using the full cost system to compute the product cost unit, and using the job order system. The service unit is measured on passenger/marine mile or the ton/hour.

Institution is divided to production centers: processing center, petroleum center, passengers' center, and the artificial floating pavement, and assisting departments: financial department, services department, maintaining department, Garage department, affairs officers department, development department, purchasing department, controlling, auditing department, legal department, and projects department.

The main department in the institution is the processing department, it achieves the following activities:

- Loading or deflating goods on/from vessels.
- Receiving and storing goods on special pavements.
- Delivering goods to their owners.
- Leasing machines.
- Supplying vessels with water and fuel.
- Providing services to passengers.
- Vessels alignment in the port.

1.1 Study Problems

This study is devoted to answer the following questions:

- 1) Is the applied cost system in Jordanian Institution ports efficient?
- 2) Is the applied cost system in Jordanian Institution ports effects on pricing the services decisions?
- 3) Is the applied cost system in Jordanian ports on offering new effects on services decisions to customers?
- 4) Is the applied cost system in Jordanian Institution ports effects on performance evaluating decisions?
- 5) Is the applied cost system in Jordanian Institution ports effects on performance controlling?
- 6) Are there any statistical differences in the awareness of the responsible on the benefits of the costing system in decision making (age, education level, Job, and specialty).

1.2 Study Objectives

The study aims to identify:

- 1) The efficient of the applied cost system in Jordanian Institution ports.
- 2) The effect of applied cost system in Jordanian Institution ports on pricing the services decisions.
- 3) The effect of applied cost system in Jordanian ports on offering new services decision to customers.
- 4) The effects of applied cost system in Jordanian Institution ports effects on performance evaluating decisions.
- 5) The effect of the applied cost system in Jordanian Institution ports on performance controlling decisions.
- 6) If there are any statistical differences in the awareness of the responsible on the benefits of the costing system in decision making (age, education level, Job, and specialty).

1.3 The Importance of the Study

The importance of this study comes from that it's the unique study in surviving, testing the cost system in Jordanian institution ports, and its effect in management decisions.

1.4 Hypotheses

This study aims to test the following hypotheses:

- H1: The applied cost system in Jordanian Institution ports is efficient.
- H2: The applied cost system in Jordanian Institution ports effects on pricing the services decisions.
- H3: The applied cost system in Jordanian ports effects on offering new services decision to customers.
- H4: The applied cost system in Jordanian Institution ports effects on performance evaluating decisions.
- H5: The applied cost system in Jordanian Institution ports effects on performance controlling decisions?
- H6: there are significance statistical differences in the awareness of the responsible on the benefits of the applied costing system in decision making (age, education level, Job, and specialty).

2. Literature Review

Port aims to serve in importing and exporting goods in lower cost, high speed, with considering the international quality standards. To achieve this purpose, the port must use the suitable equipments and persons, establishes independent cost department, designs and uses suitable cost system to support management with suitable data, for planning, drawing polices, services' pricing, providing new services in a global competitive, and in controlling and measuring performance.

To make the cost system effective, the port should be divided into cost centers; each center represents activity or a group of similar activities, and ties every cost centre with one department. This helps in planning, controlling, estimating responsibilities, analyzing every service costs to variable and fixed costs, and distributing overhead costs to cost centers depending on benefits from these costs. If this happened, the port can implementing the responsibility accounting, which helps in measuring the employment of budgets, and supports management with feed back data, and discovering any deviations between the actual and budgeted costs.

The efficient cost system helps management achieving the following purposes:

- The early warning of unusual events, which cannot easily discovered.
- Comparing data within two periods, and with other enterprises, and make correct decisions.
- Helping managers in discovering the deviation quickly and corrects them.

- Measuring performance and performance expectations (Kern, 2008), and the effectiveness of using resources.
- Identifying the cost drivers, and the market drivers.
- Facilitating cash flow estimates (Maines & Wahlen, 2006).
- Provides managers with a better understanding decision alternatives and the actions to reach objectives (Sharma et al., 2006).
- Helps in reducing ex-ante uncertainty and allows better informed effort in improving strategic and operational decision making (Kern, 2008).
- The efficient cost system is the system that supports management with relevance information, which has a predictive value, feedback value, and timeliness, and reliability information which is verifiability, representative faithfulness and neutrality (Kieso et al., 2011).
- If the cost system offer information about the cost of every unit or service produced, managers can make good decisions in the following areas: Services pricing, offering new services, evaluating and controlling performance decisions (Nicolaou, 2003).

There is a strong relationship between the development of cost accounting and the perception of it (Al- Omiri & Drury, 2007).

The main decisions that the port can take it:

- Services Pricing Decisions

Services in Jordanian Institution ports are priced by government; this prevents management from estimating the services prices in a trading method, or by using the scientific basis, which are depend on discussing the requirements of customer in service's quality, price, aspect, and specifications, the substitute services in the competitive ports in the region, the pricing of services by the competitive, the competitive technology, the competitive production power, and his marketing strategy and the currencies translation.

Government should let ports' management to take the suitable price of services that they provide to customers by following the scientific methods, if it needs the abidance and continuity of the ports, especially in the following conditions:

- The port provides many services, this creates difficulties in pricing these services, relating to customers requirements, customers education, and the reference price.
- The other facilities, which is provided to customer.
- The need to collect other information about competitive prices.
- The need to know the actual cost of the service.
- The need to compute the service cost in the abnormal conditions.

Baired measures the information benefits that the cost accounting system offered in discovering the defectiveness in estimating the product or service cost, relating to the differentiates of the products or services (Baired et al, 2004). Pizzini also found that the suitable data for the pricing products or services and in evaluating process which is provided to managers can help them in making decisions in these fields (Pizzini, 2006).

- Estimating the Services that the Port can Provide to Customers

Decision making in estimating the kinds of services that can the port offer to customers depends on strategic analysis of the external environment, to know the opportunities to benefits from them, by providing new services agree with these opportunities, and omits the services, if the customers don't need them.

- Evaluating and Controlling Performance

Performance control depends on the capability of the manager to effect on his employees. He can control only activities performed in his area of responsibility (Horngren et al. 2009, Brewer et al 2000). The control function depends on establishing performance goals, and to ensure that all members in the enterprise work towards achieving these goals (Merchant, 200). Monitoring employees and their actions requires a great deal of information, that the cost information system can offered (Chenhall & Langfield, 2003). Managers must identify and explain the flaws in the employees' performance (Gibbs et al., 2004). The objective control avoids the information costs of the subjective systems (Bouwends & Van lent, 2006). Some times managers see that accounting data doesn't include all dimensions of measuring performance (Arya et al., 2005), depending on their

environment's factors, evaluation style, the enterprise's goals, and production technology (Otley & Fakiolas, 2000).

Measuring the effectiveness of the cost system depends on relevance and reliability of the data that this system can be offered (Nicolaou, 2000), and in evaluating the performance of the cost centers' managers, and recognizing the unprofitability activity that doesn't add value (Hoque, 2000).

Drury & Tayles (2006) tested the profitability of the British companies, and they found that if the company considered unique cost center, this lets the company use only one rate to assign overhead costs. Skorecki (2004) also tested "how banks treat overhead costs. Tillemn (2005) tested the aspects of designing and using the cost system. Pavlatos and Paggios (2007) tested the applying of management accounting and the cost system which is depended on the activity in assigning costs. Gupta and Gunasegaram (2005) tested management accounting role in producing useful information to management to make decisions. Cohen & Kaimenaki (2009) tested the relation ship between cost accounting and the data quality; they found there is no effect of the cost accounting capability in gathering and producing good reports on the information quality.

3. Study Methodology

The study is based on a descriptive approach, by surveying the preceding studies in same area; the study also depends on analytical approach by developing a questionnaire to answer the questions of the study, and testing the study's hypotheses of the study.

3.1 Study Population and the Sample

The population of the study consists of 35 managers, manager assistants and the cost department's employees, who are concerned with decisions making. Researcher distributes 35 questionnaires; he received only 29 from them. He found only 24 are correct questionnaires, these represents 68.6% from the total of the distributed questionnaires.

3.2 The Study Tool

The questionnaire consists of two parts; part (1) consists of statements measures the personal characteristics (demographic) of the responsible, and part (2) consists of 16 statements which measure the cost system efficient, and 4 statement measures the decisions, which are important from the management's view point. Five lickert scales has been used to determine the weights of the statements that are follows: strongly agree, agree, neutral, disagree, and strongly disagree (See appendix 1).

Researcher tested the reliability of the questionnaire depending on Cronbach's Alpha, and he found the 0.889.

3.3 Statistical Methods

The following statistical methods have been used in this study:

- Measures of descriptive statistics based on the statistical packages (SPSS) to describe the characteristic s of the study.
- One sample T-Test to compute the averages calculated with the tabulated average applied in this study.
- Bivariate Correlation (Pearson coefficient) to test the effect and the power of applied cost system in Jordanian Institution ports on decision making.
- One-Way ANOVA to test the variance to identify the significance difference on the perception of the responsible of the importance of the application of the cost system in decision making, which is attributed to the variables of demographics (age, educational level, job, specialty).

4. Results and Discussion

4.1 Sample Characteristics

Table 1. Demographics variables

Description	Frequency	Percentage
Age	20 - 30	2 8.3 %
	31-40	4 16.7 %
	Larger than 40	18 75 %
Educational Level	Graduate	6 25 %
	High graduate	13 54.2 %
	High secondary	5 20.8 %
Job	Manager	7 29.2 %
	Division manager	10 41.7 %
	Employee	7 29.2 %
Specialty	Management	2 8.3 %
	Accounting	2 8.3 %
	Others	20 83.3 %

The table 1 shows that percent 16.6 % from the responsible had B Cs degree in management and accounting, this means that a large percent (83.3%) of the port's departments is governed by unspecialist members. They didn't take the suitable education which can help in making decisions. Percent 70.8% from them were managers and managers' assistants, who take decisions, and they weren't qualified members, only 12.9% from them, who studied cost accounting and management accounting or managerial accounting in there universities.

To answer the study questions, researches computed the medium and deviation for the questions as on the table 2.

Question 1: Is the applied cost system in Jordanian Institution ports efficient?

To test the efficiency of the applied cost accounting system, which is applied in Jordanian institution's ports, researcher computed medium, deviation of the answers of the responsible on the statements (1-16), which measures the answer of this question, by using one sample t- test. The average of all answers of these statements is 3.271, which is larger than the normal average 3, this means that the cost system in Jordanian Institution ports is efficient.

Table 2. One sample T-Test

Question	Medium	Deviation	T Value	Sig.
1 Cost system provides suitable data to decision maker.	3.8333	0.868	4.703	0.000
2 Cost system provides information in the time where managers need it.	3.5417	0.833	3.186	0.004
3 Cost system provides information for feed back.	3.4583	0.932	2.410	0.024
4 Cost system prepares information helps in prediction and planning.	3.7500	1.032	3.560	0.002
5 We can verify the information that is prepared by the cost system.	3.2083	1.141	.894	0.380
6 The information that prepared by cost system is faithfulness.	2.9583	0.955	-.214	0.833
7 Cost system provides management with correct information.	3.0417	1.197	.171	0.866
8 Cost system provides management with neutral information.	2.7500	1.422	-.861	0.398
9 Cost system provides top management with summarized reports.	2.8750	1.191	-.514	0.612
10 Cost system provides management with comparative information for the current and preceding years.	2.7083	1.367	-1.046	0.307
11 Cost system provides the operating management with detailed reports.	2.7500	1.359	-.901	0.377
12 Cost reports concentrates on the important issues.	2.8333	1.308	-.624	0.539

13	Cost reports contain all changes in policies and prepared depending on cost standards.	2.4167	1.316	-2.172	0.040
14	Cost reports appear the problems solutions alternatives.	2.5417	1.179	-1.905	0.069
15	Cost system use the same standards and policies from year to year.	2.4583	1.250	-2.122	0.045
16	Cost system helps in discovering the deviation between actual and planned data.	2.8333	1.308	-.624	0.539
	The General Medium	3.271	0.872	1.522	0.142

Questions 2, 3, 4 and 5

To answer the questions 2, 3, 4, and 5, researcher used Bivariate Correlation (Pearson), to test the effect of the cost system on decisions making (services pricing, to estimates the services that the ports can be provided to customers, evaluating, and controlling performance). He found that the correlation between the applied cost system in Jordanian institution ports and the decision making is weak, as appeared in table 3.

Table 3. Correlation test

	Services pricing decision	Providing new services decision	Evaluation performance decision	Controlling performance decision	The general medium
Correlation coefficients	0.570	0.436	0.037	0.281	0.410
significance	0.004	0.033	0.007	0.183	0.043

4.3 Testing the Hypotheses

The first hypothesis: Applied cost system in Jordanian Institution ports, is efficient.

From analyzing the answers received of responsible on the statements (1-16) that measure this hypothesis depending on one-sample T-test, computed T value (1.52) is less than the T- tabulated value (1.714) at a confidence level (0.05) and degrees of freedom (23). Accordingly, we accept this hypothesis, this means that the applied cost system in Jordanian Institution ports is efficient.

Second Hypothesis: Applied cost system in Jordanian Institution ports effects on pricing the services.

From computing the correlation between the applied cost system and the service pricing decision, by using Pearson correlation, as in table (3), the relation ship between the two variables is weak (correlation coefficient 0.570), at a confidence level (0.05), so that we reject this hypothesis, this means that the applied cost system hadn't any effect decision making.

Third Hypothesis: Applied cost system in Jordanian ports effects on offering new services decision to customers.

From computing the correlation between the applied cost system and offering new services decision, by using Pearson correlation, as in table (3), the relation ship between the two variables is weak (correlation coefficient 0.436), at a confidence level (0.05), so that we reject this hypothesis, this means that the applied cost system hadn't any effect decision making.

Forth Hypothesis: Applied cost system in Jordanian Institution ports effects on performance evaluating decision.

From computing the correlation between the applied cost system and performance evaluating decision, by using Pearson correlation, as in table 3, the relationship between the two variables is weak (correlation coefficient 0.037), at a confidence level (0.05), so that we reject this hypothesis, this means that the applied cost system hadn't any effect performance evaluating decision.

Fifth Hypothesis: Applied cost system in Jordanian Institution ports effects on performance controlling decision.

From computing the correlation between the applied cost system and performance evaluating decision, by using Pearson correlation, as in table 3, the relationship between the two variables is weak (correlation coefficient 0.281), at a confidence level (0.05), so that we reject this hypothesis, this means that the applicable cost system

hadn't any effect performance controlling decision.

Sixth Hypothesis: There are significance statistical differences in the awareness of the responsible on the benefits of the costing system in decision making (age, education level, job, and specialty).

To test this hypothesis, researcher used One-Way ANOVA test. The results appeared as in table 4, all the calculated F values are less than the tabulated F values for the all demographic variables were less than tabulated F value, that it didn't show statistically significant differences in the perceptions of the responsible can be attributed to demographic variables, so that we reject this hypothesis. This means that there are no any statistical differences in the awareness of the responsible on the benefits of the costing system in decision making can be attributed to demographic variables (age, education level, job, and specialty).

Table 4. One-way ANOVA test

Demographic variables	Sum of Square	Mean Square	Freedom degrees	F calculated	F Tabulated	Sig.
Age	1.697	0.848	(2,21)	1.128	3.47	0.342
Education	1.353	0.676	(2,21)	0.880	3.47	0.429
Function	1.242	0.621	(2,21)	0.803	3.47	0.461
Science level	4.615	1.154	4,19	1.702	2.90	0.191

5. Conclusions

This study tested the efficiency of the applied cost system in Jordanian ports, and the effect of this system on management decisions depending on a questionnaire developed after surveying the related studies in the same area, and analyzing the responses of the respondents in the study population by using descriptive and analytical statistic, one sample T-Test, Bivariate Correlation (Pearson coefficient), one-Way ANOVA to test the study's hypotheses.

From the study we can conclude that the applied cost system in Jordanian ports is efficient, but this efficient cost system hasn't any effect on management decisions (services pricing decision, offering new services decision to customers, measuring performance decision, performance control decision) and there aren't any significance statistical differences in the awareness of the respondents on the benefits of the applied costing system in decision making.

This study is the first one that tests to what extent that the applied cost system in Jordanian Institution ports is efficient and its effect on management decisions. Researcher hopes that he participates in this field of studies, and he hopes that his study to become benchmark in this field, especially in Jordan.

6. Recommendations

The study recommendations are:

- 1) Enter managers and their assistants in training programs in management accounting, to supply them with information relating to service pricing, using cost data in evaluating and controlling performance.
- 2) Benefiting from the results of the studies in this area.

References

- Al-Omiri, M., & Drury, C. (2007). A survey of factors influencing the choice of product costing systems in UK organizations. *Management Accounting Research*, 18, 399-426.
- Arya, A., Glover, J., Mittenorf, B., & Ye, L. (2005). On the use of customized versus standardized performance measures. *Journal of Management Research*, 17, 7.
- Atrill, P., & McLaney, E. (2008). *Accounting and Finance for Non-Specialists* (6th ed.). Pearson Education Limited.
- Baired, K. M., et al. (2004). Adoption of activity management practice: A note on extent of adoption and influence of organizational and cultural Factors. *Management Accounting Research*, 15, 385-390.
- Bouwens, J., & Van Lent, L. (2006). Performance measure properties and the effects of incentives contacts. *Journal of Management Accounting Research*, 18, 55.
- Brewer, et al. (2000). Wilson Electronic (A) and (B): An ABC capstone experience. *Issues in Accounting*

- Education*, 15(3), 413.
- Chenhall, R. H., & Langfield, K. (2003). Performance measurement and reward systems, trust, and strategic change. *Journal of Management Accounting Research*, 15, 117.
- Chiapello, E., & Lebas, M. (2001). The Tableau de Bord, a French approach to management information. working paper, H.E.C. School of Management
- Cohen, S., & Kaimenaki, E. (2009). Cost Accounting systems Structure and Information Quality Properties: An Empirical Analysis. *Journal of Applied Accounting Research*. Athena, Greek.
- Gibbs, M., K. A., Merchant, W. A., Vander, S., & Vargus, M. E. (2004). Determinants and effects of subjectivity in incentives. *The Accounting Review*, 79(2), 409.
- Gupta, K. M., & Gunasekaran, A. (2005). Costing in new enterprise environment—a challenge for managerial accounting researchers and practitioners. *Managerial Auditing Journal*, 20(4), 337-353.
- Hilton, R. W. et al. (2003). *Cost Management: Strategies for business decisions* (2nd ed.). McGraw-Hill.
- Hoque, Z. (2000). Just-in-time production, automation, cost allocation practices and importance of cost information: an empirical investigation in New Zealand-based manufacturing organizations. *British Accounting Review*, 32, 133-159.
- Hornngren, C. T., Datar, S. M., & Rajan, M. V. (2009). *Cost accounting: Managerial Emphasis* (13th ed.). Pearson International.
- Kaimenaki, E. (2008). An analytic investigation of cost accounting systems structure Relationships with cost accounting information quality and corporate performance. PhD thesis, Athens University of Economics and Business.
- Kieso, D. E., Weygandt, J. J., & Warfield, T. D. (2011). *Intermediate Accounting* (13th ed.). John Wiley & Sons.
- Kren, L. (2009). Managerial Accounting. Retrieved from <http://www.cost-accountant.com>
- Maines, L. A., & Wahlen, J. M. (2006). The nature of accounting information reliability. *Accounting Horizons*, 20(4), 339.
- Merchant, K. A. (2007). Evaluating general managers performance. *Strategic Finance*, 88(11), 12.
- Nicolaou, A. I. (2000). A contingency model of perceived effectiveness in accounting information systems: organizational coordination and control effects. *International Journal of Accounting Information Systems*, 1, 91-105.
- Nicolaou, A. I. (2003). Manufacturing strategy implementation and cost management systems effectiveness. *European Accounting Review*, 12(1), 175-199.
- Otley, D., & Fakiolas, A. (2000). Reliance on Accounting performance measures: Dead end or new beginning. *Accounting Performance Management Magazine*, 6(2), 12.
- Pavlatos, O., & Paggios, I. (2007). Cost accounting in Greek hotel enterprises: an empirical approach. *Tourisms: an International Multidisciplinary Journal of Tourism*, 2(2), 39-59.
- Pizzini, M. J. (2006). The relation between cost-system design, managers' evaluations of the relevance and usefulness of cost data, and financial performance: 18 an empirical study of US hospitals. *Accounting, Organizations and Society*, 31, 179-210.
- Sharma, R., Jones, S., & Ratnatunga, J. (2006). The relationships among board scope MAS, Managerial control, performance, and job relevant information: A concomitant analysis. *Review of Accounting and Finance*, 5(3), 228.
- Skorecki, A. (2004). Banks have not tackled indirect costs.

Appendix

Questionnaire

Mistresses/misters

Please full the questionnaire

The Study name “the efficient of cost system in Jordanian Institution ports and its effect on the decision making”

This questionnaire is designed for the scientific research; the data will be treated in security.

Part 1. The demographic variables

Please put x in the correct option:

(1) Age

- (a) from 20 - 30 years. ☐
- (b) from 31 - 40 years. ☐
- (c) 41 years or more. ☐

(2) Educational level

- (a) Graduate ☐
- (b) High-graduate ☐
- (c) High-school ☐

(3) Job

- (a) Manager ☐
- (b) Manager's assistant ☐
- (c) Employee ☐

(4) Specialty

- (a) Management ☐
- (b) Accountant ☐
- (c) Others ☐

Part 2. Please put (x) on the answer you feel is the correct

	Question	Strongly agree	agree	Neutral	Dis-agree	Strongly disagree
1	Cost system provides suitable data to decision maker.					
2	Cost system provides information in the time where managers need it.					
3	Cost system provides information for feed back.					
4	Cost system prepares information helps in prediction and planning.					
5	We can verify the information that is prepared by the cost system.					
6	The information that prepared by cost system is faithfulness.					
7	Cost system provides management with correct information.					
8	Cost system provides management with neutral information.					
9	Cost system provides top management with summarized reports.					
10	Cost system provides management with comparative information for the current and preceding years.					
11	Cost system provides the operating management with detailed reports.					
12	Cost reports concentrates on the important issues.					

-
- 13 Cost reports contain all changes in policies and prepared depending on cost standards.
 - 14 Cost reports appear the problems solutions alternatives.
 - 15 Cost system use the same standards and policies from year to year.
 - 16 Cost system helps in discovering the deviation between actual and planned data.
 - 17 Cost system helps management in services pricing.
 - 18 Cost system helps management to provide new services.
 - 19 Cost system helps management to measure performance.
 - 20 Cost system helps management in controlling performance.
-