Research Journal of Business Management, 2013
ISSN 1819-1932 / DOI: 10.3923/rjbm.2013.

Activity Based Costing in Public Sport Organizations: Evidence from Greece

[1]Ioannis D. Kosmas and [2]Panagiotis E. Dimitropoulos

[1]City of Papagos-Holargos, Division of Sport, Culture and Environment (DOPAP), Neurokopiou and Argirokastrou Papagos Athens, PC. 169-76, Greece

[2]Department of Sport Management, University of Peloponnese, Orthias Artemidos and Plataion, P.C. 23100, Sparta, Greece

Corresponding Author: Ioannis D. Kosmas, City of Papagos-Holargos, Division of Sport, Culture and Environment (DOPAP), Neurokopiou and Argirokastrou Papagos Athens, PC.169-76, Greece Tel: 210 6543879

ABSTRACT

The scope of this study is to examine whether the application of a new costing method (Activity Based Costing-ABC) within a public sport organization, contributes to better costing control, evaluation of non-value adding procedures and efficient allocation of municipal costs to local citizens. For this reason financial and cost data was used of a public sport facility within the city of Papagos-Holargos in Greece. The analysis suggested that ABC produces more efficient costing data since several athletic activities proved to be undervalued under the traditional costing method while others were significantly overvalued. Consequently, the application of an advanced cost accounting model like ABC could be proved useful for achieving more resourceful product costing, cost reduction, operational efficiency and even profitability. This study is the first trying to implement the ABC method to a public sport organization in Greece and adds to a growing number of studies on this field.

Key words: Activity-based costing, sport services, sport organizations, cost accounting, management accounting

INTRODUCTION

Activity Based Costing (ABC) has been considered extensively by both researchers and accounting practitioners over the past two decades. Bjornenak and Mitchell (2002) documented that ABC has been applied within a broad range of business sectors as well as operational activities in firms. ABC is a financial tool which focuses on indirect costs and analyzes all the procedures that lead to the total cost of a product or service (Arnaboldi and Lapsley, 2003). This technique identifies that every service uses procedures and these procedures use resources that ultimately drive up costs (Brown *et al*., 1999). Englund and Gerdin (2008) document that the ABC system entails several technical advantages which improve managerial abilities through more accurate product cost information. This argument has been verified by Gunasekaran (1999) and Cohen *et al*. (2005) who document that firms employing ABC improved their cost control and even their financial outcomes.

Furthermore, ABC has been implemented heavily in the service sector and specifically in the public sector. King *et al*. (1994) concluded that the British National Health System can benefit from the adoption of ABC because it is a method that can easily adapt in the specific needs and particularities of each institution. In addition, Bagur *et al*. (2006) documented that in the Spanish

public sector ABC systems are highly developed since they have proved to be increasingly efficient in allocating indirect costs with a reasonable degree of accuracy. Finally, a recent study by Vazakidis *et al.* (2010) in the Greek public sector documented that ABC is easily applicable but with no significant impact on the cost evaluation compared to the traditional costing method. However, their study is performed in 2007 where the financial status of the country was different from the current status quo.

Since then the financial environment in Greece started to be heavily disrupted and drastically deteriorated. The financial report of Eurostat (2011) refers to the Greek economic indicators for the next three years which all coincide to a severe recession in the near future. At September 2011 in Kiev, during the European Council of ministers about local governments, there was a discussion about the recourses of local governments and how they can manage to reduce the State funding. One of the ways to face this reality was to save recourses and utilize staff knowledge and abilities. The Greek governments during the last three years tried to take several steps in order to restrain municipal budgets and even force local councils to be less dependent on the state budget. Law 4024 (2011) and Law 4093 (2012) aimed towards these directions. The municipal councils must be more careful when they decide about local issues which are related to the city's financial status. Recently, the Greek parliament voted the national budget (following directions from the IMF and the EFSF) which decreases municipals' funding up to 60% relative to the previous fiscal year. At the same time the Minister of Economics and the Minister of internal affairs, created a new council (Observatory) to control municipal budgets in a monthly basis. If a municipality creates new debts or hasn't paid past liabilities, the grant should been further curtailed or the local citizens would have to pay increased taxes or staff should be fired so as to fill the gap.

Under these circumstances, local authorities must find ways to pay their debts, control their costs more efficiently and offer to their citizens' social services of enhanced quality. This status quo in the Greek economy motivates our present study since it is believed that the ABC (Activity-Based Costing) method can be seen as the solution to better costing control, evaluation of non-value adding procedures and efficient allocation of municipal costs to local citizens. This method is the proper one to access the cost of municipal services, to compare and finally to implement new strategies with low cost and offer the best services to the citizens. The purpose of this study is to implement the ABC method on the athletic services at the Municipality of Papagos-Holargos (Municipal Organization for culture, sports and environment). Specifically, the analysis was focused on the athletic services offered to the local citizens of Papagos-Holargos city and makes useful policy suggestions for its future implementation. The analysis documented that ABC produces more efficient costing data since several athletic activities proved to be undervalued under the traditional costing method while others were significantly overvalued.

This study adds to a growing number of research papers on the field of ABC by extending the work of Vazakidis *et al.* (2010) in the Greek public sector by evaluating a municipal organization during a period of intense financial turmoil which makes the efficient cost management of the public sector even more important. Also, the study responds to the call by Dimitropoulos (2007) who argues that sport organizations in Greece are somewhere between profit-making and non-profit making organizations and are heavily based on service functions. They are financed by both the state and private funds but they do still face costs that are generated by their main procedures. Therefore, by applying the ABC methodology for costing the athletic services of a public unity may provide useful policy implications for achieving efficient pricing, cost minimization, operational effectiveness and enhanced profitability.

LITERATURE REVIEW

ABC has developed since the 1970's within industrial companies (Kaplan, 1994) but researchers tried to fit this instrument to different economic or organizational domains as well (Timmins, 1990; No and Kleiner, 1997; Gunasekaran, 1999; Gunasekaran *et al.*, 1999). Since the 1980's the ABC technique was used by an increased number of companies all over world (Agyar *et al.*, 2007) in different sectors such as the manufacturing and industrial sectors (Brierley *et al.*, 2001; Cotton *et al.*, 2003; Kiani and Sangeladji, 2003; Innes and Mitchell, 1995; Innes *et al.*, 2000). However, during the 1990's ABC started to conquer the service sector (Collins and Munter, 2001; Bjornenak and Mitchell, 2002). Sephton and Ward (1990) argued that ABC can be applicable in the financial institutions because it can control the common costs and offer information regarding the cost in high risk financial products. This argument has been verified by Hussain and Gunasekaran (2001) who document that ABC provides a correct picture of the cost consumption to the financial services managers which enhances the ability for corrective managerial decisions and actions.

Moreover, ABC finds application to several other service industries including hospitals (Suthummanon *et al.*, 2005), hotel and tourism corporations (Vazakidis and Karagiannis, 2011) and even public organizations. Specifically, Bagur *et al.* (2006) conducted a research regarding the implementation of cost management models in the Catalonian town halls. They concluded that in a major extent activity based costing systems proved to be increasingly efficient in allocating indirect costs with a reasonable degree of accuracy, consequently services do not suffer from serious over-costing or under-costing on a regular basis. A relative method was employed by Vazakidis *et al.* (2010) in the Greek public sector but with no significant results between the ABC and the traditional costing method.

The advantages of the ABC method have been documented by several researchers on the field. Soin *et al.* (2002) argued that ABC revealed new links between costs and products which were not evidenced under the traditional costing procedure. Furthermore, Kee (2003, 2004) found that ABC aids in identifying problematic areas of firm's operations and the resources needed in order to improve operational efficiency. In addition, this method can assist managers to simultaneously evaluate the product mix and capital budgeting decisions. These findings are corroborated by Beheshti (2004) and Cohen *et al.* (2005) arguing that ABC adoption assists on improved cost control and cost reduction, improved insight into cost causation and enhanced operational efficiency. Finally, a recent study by Cugini *et al.* (2007) declares that ABC application can assist service industries to enhance customer satisfaction (and ultimately loyalty and profitability) by identifying specific ties between satisfaction components and the relative procedures that generate them.

Nevertheless, according to Dimitropoulos (2007) the sport sector is composed to a great extent of service functions, yet less or none have been reported regarding the use of activity based costing to support cost management in sport organizations. The aim of this study is to fill this gap in the literature by practically implementing ABC within a public sport organization and providing useful policy implications for extending this method to other service sectors of the public domain. It is believed that efficient cost management is a very important issue that public managers must take under consideration in order to achieve more resourceful product costing, cost reduction, operational efficiency and enhanced service quality.

DATA AND METHODOLOGY

The Division of Sport, Culture and Education (DOPAP) of Papagos-Holargos municipality consists of four departments. The athletic department, the culture department, the financial administration department and the environment department. Sports facilities belong to the athletic

department. So, financial data from a sport facility in cooperation with the financial department was extracted. Thereafter, the study uses the wages of the employees, the contract that the organization had signed for services or goods, the payments of electricity, water, cleaning, etc. There were four stages that the study employed for the adaptation of the ABC system for DOPAP.

Stage 1

Identify procedures for analysis: The first stage is to find the procedures for analysis. The selection was based on public administration procedures, the rent of the building and the fitness programs offered to local citizens (pilates, aerobics, general gymnastics, Greek dances, fitness machines).

Stage 2

Identification and classification of activities (activities analysis): The activities associated with the procedures. Identification and classification were used to categorize into direct activities and indirect activities.

Stage 3

Determine the cost drivers: The cost drivers for the activities were then calculated. For each activity was determined the cost driver based on hours or money spent. For example, the employee training estimated by the hours of practicing, the administrate procedure (when someone wants to pay for the athletic programs) was estimated by the hours per person.

Stage 4

Allocate all activities to procedures: Finally, all activities are assigned to the procedures using different cost drivers in order to obtain the final costs.

The employees of the specific sport facility are 10. Nine of them are the trainers and the other is the administrative staff. The customers of the sport facility sum up to 312 citizens. In Greece the weekly working timetable is 40 h while the annual amount is 2,080 h (52 weeks). The actual daily working timetable is 8 h which means 40 h per week. But the sport facilities in the Municipality of Papagos-Holargos are open 33 weeks in year. Every Saturday one trainer works extra for 4 h. Another important point is that trainers work in more than one sport facilities in the municipality of Papagos-Holargos. The cost of every hour for trainers is 5.35€ but for the administration employee is 4€. It was decided to consider as a weekly working timetable the hours that every trainer work in this facility. So, every person's hour is different to another. All the elements of the DOPAP were extracted under the permission of the President and the research took place during the fiscal year of 2012.

RESULTS

Table 1 presents the results based on the traditional costing method. The fixed costs are more than variable costs, this is attributed mostly to salaries and facilities rent. Nevertheless, the annual cost per customer in the sport facility is 163.8€. This specific method assumes that every activity in this sport facility consumes the same recourses. However, each activity requires deferent recourses and spans within separate time horizons. Consequently, the traditional costing method lacks detailed information on how costs interact with activities. In contrast, the ABC method takes under consideration the cost of every activity based on time and provides useful data for financial decision making.

Table 1: Annual statement of accounts of 2012 for sport facility (traditional method, amounts in euro)

Type of cost	Variable cost	Fixed cost	Total cost
Salaries		26533.0000	26533.00
Overtime 4 h×33 (= 132×5.35 = 706.2€)		706.2000	706.20
Employees training		250.0000	250.00
Telecommunication		514.0000	514.00
Electricity	3000		3000.00
Cleaning company	780		780.00
Rent		18476.2500	18476.25
Water	65		65.00
Cleaning products	100		100.00
Promotion		60.0000	60.00
Maintenance for air conditions	200		200.00
Maintenance	150		150.00
Administrative cost	113		113.00
Disposables	150		150.00
Total	4558	46539.45000	51097.45
Annual cost per customer		51097.45/312	163.80

Table 2: A summary of activities for the ABC for the sport facility of Municipal Papagos-holargos

Activities	Customer per activity/year	Time per activity	Hours per activity/year
General gymnastics	89	50	11550
Pilates	77	50	11550
Aerobic	52	50	8250
Fitness machines	66	75	148500
Greek traditional dances	28	50	1815
	Total No. of customers 312		Total No. of min 181665

Table 2 provides details on the activities that take place in the sport facility for the year 2012 along with the time that each activity requires. It is obvious that the activities do not have the same response and participation from the public, nor they require the same time in order to be completed. For example, 89 customers choose general gymnastics as the basic form for their exercise. The sport facility offers this specific activity about 6 h a week. On the other hand, the fitness machines were used per 6 h a day and totally 66 customers have chosen this kind of activity as their main form of exercise.

Table 3 presents the activity cost drivers for each kind of cost made by the sport facility during the year 2012. The costs of electricity and telecommunication were assigned to the numbers of hours the facility operated during the year. Cleaning products and the cost of the cleaning company were assign to the persons who participate in athletic programs. On the other hand, the payment of the rent of the sport facility was estimated based on the total minutes that the facility was operating. Additionally, the cost driver of disposables was the number of customers who used the facility because the consumption of disposables depends on the number of people who paid for the sport services. There is a direct link between the salaries of the employees and the maintenance cost of the building with the hours that the facility was open during the year. That is why was decided to choose as a cost driver the hours of each activity over the year. Also, the consumption of water depends again on how many customers use the facility. The same stands for the administrative

Table 3: Cost drivers for the sport facility of municipal Papagos-holargos

Activity cost pool	Activity cost driver	Proportion	Cost per unit (€)
Electricity	No. of hours	3000/181665	0.0200
Telecommunication	No. of hours	514/181665	0.0030
Cleaning products	No. of customer	100/312	0.3200
Cleaning company	No. of customer	780/312	2.5000
Rent	No. of hours	18.476,25/181665	0.1020
Disposables	No. of customer	150/312	0.4800
Salaries	No. of hours	26533/181665	0.1460
Maintenance	No. of hours	150/181665	0.0008
Water	No. of customer	65/312	0.2100
Administrative cost	No. of customer	113/312	0.3600
Promotioning	No. of customer	60/312	0.1900
Maintenance for air conditions	No. of hours	200/181665	0.0010
Employees training	No. of hours	250/181665	0.0010
Over times	No. of hours	706,2/181665	0.0040

Table 4: Results from the application of the ABC method (amounts in euro)

Activity cost pool	General gymnastics	Pilates	Aerobic	Fitness machines	Greek traditional dances
Electricity	1.00	1.00	1.00	1.500	1.00
Telecommunication	0.15	0.15	0.15	0.225	0.15
Cleaning products	28.48	24.64	16.64	21.120	8.96
Cleaning company	125.00	125.00	125.00	187.500	125.00
Rent	5.10	5.10	5.10	7.650	5.10
Disposables	42.72	36.96	24.96	31.680	13.44
Salaries	7.30	7.30	7.30	10.950	7.30
Maintenance	0.04	0.04	0.04	0.060	0.04
Water	18.69	16.17	10.92	13.860	5.88
Administrative cost	32.04	27.72	18.72	23.760	10.08
Promotioning	16.91	14.63	9.88	12.540	5.32
Maintenance for air conditions	0.05	0.05	0.05	0.075	0.05
Employees training	0.05	0.05	0.05	0.075	0.05
Over times	0.20	0.20	0.20	0.300	0.20
Final cost	277.73	259.01	220.01	311.295	182.57

Electricity cost: Cost per unit×time per activity (e.g., general gymnastics, pilates, aerobic, Greek traditional dances 0.02×50), Cleaning products: Cost per unit×customer per activity/year (e.g., general gymnastics 0.32×89), Cleaning products: Cost per unit×customer per activity/year (e.g., pilates 0.32×77), Administrative cost: cost per unit×customer per activity/year (e.g., aerobic 0.36×52), Employees training: Cost per unit x time per activity (e.g., fitness machines 0.001×75)

expenses and the promotion planning of the organization. The hours were chosen as cost driver for maintenance, the same cost driver is used for the maintenance costs of air conditioning. The employees' training and overtimes is obvious that the only cost driver that suits to those is the number of hours of each activity.

Finally, Table 4 presents the results of costing the main athletic activities of the sport facility using the ABC method. Someone can observe that the annual cost for general gymnastics, pilates, aerobic, fitness machines and Greek traditional dances are 277.73€, 259.01€, 220.01€, 311.295€ and 182.57€, respectively. However, the traditional costing method provided an annual cost per customer up to 163.8€ for each activity assuming that each activity consumes the same resources. Therefore, the ABC method indicates that all activities in the sport facility were seriously

undervalued leading to an unprofitable economic policy on behalf of municipal administration. It is obvious that the machines of fitness spend much more recourses relative to the rest of the activities while traditional dances use the least of the recourses thus remain the most profitable activity of the facility. Consequently, the evidence corroborate previous studies on the field who argue that ABC costing method yields more detailed information on efficient costing and contributes to enhanced managerial efficiency.

CONCLUSION

The city of Papagos-Holargos as a moderate local society has more than one sport facilities. It was decided to analyze only one of them because it is the one which has so many activities. It is very important to note that traditional cost accounting does not provide data on how the real cost was created. The analysis suggested that ABC produces more efficient costing data since several athletic activities proved to be undervalued under the traditional costing method. Consequently, the application of an advanced cost accounting model like ABC could be proved useful for achieving more resourceful product costing, cost reduction, operational efficiency and even profitability.

Thus, Activity-Based Costing gives the real information for costing regarding to every separate activity. This lead manager to take the right decision about the most profitable way for their organization. Based on this analysis and following the ABC method, the sport facility under examination seems to be able to generate significant profits from general gymnastics, pilates, aerobic and Greek traditional dances. In addition, the manager of the sport facility might need to attract more customers for using the fitness machines since it is proven to be the most cost-consuming activity. Moreover, the cooperation between the athletic department and the marketing department of the municipality is deemed crucial in order to produce ideas for campaigns which would attract more people in this particular activity.

However, this study is accompanied by some limitations which worth mentioning. Firstly, the study is focused only within one sport facility of the city of Papagos-Holargos, thus our evidence cannot be generalizable to other municipal departments. Also, data refer to only one fiscal year (2012) limiting the comparability of the results to previous years. Nevertheless, these limitations pose some fruitful avenues for future research and it will be interesting to analyze other sport facilities or departments within different municipalities and to span the research period within several years in order to have a clear picture on the evolution of activities costs, so as to gain an enhanced understanding of public cost behavior and to provide data for efficient financial decisions in the Greek local governments.

REFERENCES

Agyar, E., A. Ersoy, M. Baykara and M. Ucar, 2007. A practical application of Activity Based Costing (ABC) in an urology department. Proceedings of the 7th Global Conference on Business and Economics, October 13-14, 2007, Rome, Italy, pp: 1-15.

Arnaboldi, M. and I. Lapsley, 2003. Activity based costing, modernity and the transformation of local government: A field study. Public Manage. Rev., 5: 345-375.

Bagur, L., J.L. Boned and M. Tayles, 2006. Cost system design and cost management in the Spanish public sector. Working Papers (Universitat Pompeu Fabra, Departamento de Economia y Empresa) No. 964.

Beheshti, H.M., 2004. Gaining and sustaining competitive advantage with activity based cost management system. Ind. Manage. Data Syst., 104: 377-383.

Bjornenak, T. and F. Mitchell, 2002. The development of activity-based costing journal literature, 1987-2000. Eur. Account. Rev., 11: 481-508.

Brierley, J.A., C.J. Cowton and C. Druru, 2001. Research into product costing practice: European perspective. Eur. Account. Rev., 10: 215-256.

Brown, R.E., M.J. Myring and C.G. Gard, 1999. Activity-based costing in government: Possibilities and pitfalls. Public Budgeting Finance, 19: 3-21.

Cohen, S., G. Venieris and E. Kaimenaki, 2005. ABC: Adopters, supporters, deniers and unawares. Managerial Auditing J., 20: 981-1000.

Collins, F. and P. Munter, 2001. ABC for service firms: What's your real product? J. Corporate Account. Finance, 12: 5-8.

Cotton, W.D.J., S.M. Jackman and R.A. Brown, 2003. Note on a New Zealand replication of the Innes *et al.* UK activity-based costing survey. Manage. Account. Res., 14: 67-72.

Cugini, A., A. Caru and F. Zerbini, 2007. The cost of customer satisfaction: A framework for strategic cost management in services industries. Eur. Account. Rev., 16: 499-530.

Dimitropoulos, P., 2007. Activity-based costing in sport organizations: Theoretical background and future prospects. Choregia, 3: 17-25.

Englund, H. and J. Gerdin, 2008. Transferring knowledge across sub-genres of the ABC implementation literature. Manage. Account. Res., 19: 149-162.

Eurostat, 2011. The Effect of the Economic and Financial Crisis on Government Revenue and Expenditure. In: Economy and Finance, Wahrig, L. and I. Gancedo Vallina (Eds.). European Commission, Luxembourg, pp: 1-11.

Gunasekaran, A., 1999. A framework for the design and audit of an activity-based costing system. Managerial Auditing J., 14: 118-126.

Gunasekaran, A., H.B. Marri and Y.Y. Yusuf, 1999. Application of activity-based costing: Some case experiences. Managerial Auditing J., 14: 286-293.

Hussain, M. and A. Gunasekaran, 2001. Activity-based cost management in financial services industry. Managing Serv. Q., 11: 213-223.

Innes, J. and F. Mitchell, 1995. A survey of activity-based costing in the U.K.'s largest companies. Manage. Account. Res., 6: 137-153.

Innes, J., F. Mitchell and D. Sinclair, 2000. Activity-based costing in the U.K.'s largest companies: A comparison of 1994 and 1999 survey results. Manage. Account. Res., 11: 349-362.

Kaplan, R.S., 1994. Management accounting (1984-1994): Development of new practice and theory. Manage. Account. Res., 5: 247-260.

Kee, R.C., 2003. Operational planning and control with an activity-based costing system. Adv. Manage. Account., 11: 59-84.

Kee, R.C., 2004. Evaluating product mix and capital budgeting decisions with an activity-based costing system. Adv. Manage. Account., 13: 77-98.

Kiani, R. and M. Sangeladji, 2003. An empirical study about the use of the ABC/ABM models by some of the Fortune 500 largest industrial corporations in the USA. J. Am. Acad. Bus., 3: 174-182.

King, M., I. Lapsley, F. Mitchell and J. Moyes, 1994. Activity based Costing in Hospitals: A Case Study Investigation. Chartered Institute of Management Accountants, London, UK., ISBN-13: 9781874784258, Pages: 66.

Law 4024, 2011. Pension arrangements, a single payroll system, job redundancy and other provisions for the implementation of the medium-term framework of fiscal strategy. National Publishing Service, Athens, Greece. http://www.ydmed.gov.gr/?page_id=1145

Law 4093, 2012. Approval of the medium-term budgetary framework strategy: Emergency measures application. National Publishing Service, Athens, Greece. http://www.ydmed.gov.gr/?p=3644

No, J.J. and B.H. Kleiner, 1997. How to implement activity-based costing. Logist. Inform. Manage., 10: 68-72.

Sephton, M. and T. Ward, 1990. ABC in retail financial services. Manage. Account., 68: 29-33.

Soin, K., W. Seal and J. Cullen, 2002. ABC and organizational change: An institutional perspective. Manage. Account. Res., 13: 249-271.

Suthummanon, S, V.K. Omachonu and M. Akcin, 2005. Applying activity-based costing to the nuclear medicine unit. Health Services Manage. Res., 18: 141-150.

Timmins, P., 1990. Activity based costing: Assess the fit before making the change. J. Corporate Account. Finance, 2: 11-20.

Vazakidis, A., I. Karagiannis and A. Tsialta, 2010. Activity-based costing in the public sector. J. Soc. Sci., 6: 376-382.

Vazakidis, A. and I. Karagiannis, 2011. Activity-based management and traditional costing in tourist enterprises (a hotel implementation model). Oper. Res., 11: 123-147.