COST ACCOUNTING IN GREEK HOTEL ENTERPRISES: AN EMPIRICAL APPROACH

Pavlatos, Odysseas and Paggios, Ioannis
Technological Institute of Chalkida, University of Piraeus

November 2007

TOURISMOS: AN INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF TOURISM
Volume 2, Number 2, Autumn 2007, pp. 39-59

COST ACCOUNTING IN GREEK HOTEL ENTERPRISES: AN EMPIRICAL APPROACH

Odysseas Pavlatos
Technological Institute of Chalkida

Ioannis Paggios
University of Piraeus

The purpose of this paper is to provide insights of the Greek Hotel Industry practices in the field of Cost Accounting. To this end, a survey was conducted with 85 firms of the Greek hotel sector with the use of questionnaires. Results show that hotel enterprises have a high fixed cost structure and also face a high proportion of indirect costs. The gathered data led us to the conclusion that the majority of the hotels use traditional cost accounting systems. Nevertheless, the adoption rate of an activity based costing (ABC) system is considered rather satisfactory considering the rates that come from surveys conducted in hotel enterprises in other countries. According to the statistical analysis, the factors that mostly affect the managerial decision of hotels in favour of an ABC system include their cost structure and the cost calculation per customers' categories.

Keywords: *cost accounting practices, cost accounting systems, cost accounting techniques, activity based costing, hotel enterprises, Greece*

INTRODUCTION

Very little is yet known about cost accounting and its use in tourism enterprises and especially in hotels (Pellinen, 2003). Research in cost accounting has traditionally focused on accounting systems of large manufacturing companies. In addition, most accounting researchers interested in service production have conducted their research in non profit, public sector organizations (Olson et all., 1998). There is no question about the importance of the above mentioned surveys in accounting, but the number of studies on cost and management accounting of other profit seeking organization than auditing firms has remained very limited (Brignall et all, 1991; Sharma, 2002). Interestingly, however, there is an active interest in hospitality management and more specifically there is a lot of research in cost and management accounting

 ISSN: 1790-8418

practices of hotels and tourism enterprises (Harris and Brown, 1998). Potter and Schmidgall (1999) believe that little innovation has occurred in hospitality cost and management accounting practices and there are many issues that deserve research attention.

In light of the above, the objective of this study is to describe the present state of cost accounting practices in the Greek hospitality industry. The findings of this study are compared with prior cost accounting knowledge, and earlier cost accounting practices in lodging industry.

RESEARCH OF COST AND MANAGEMENT ACCOUNTING IN HOTELS

Studies in cost and management accounting applied in the lodging industry have been contacted both in tourism management research and accounting research. Studies exist for the various aspects of the tourism business of restaurants (Ahrerns and Chapman, 2002), passenger transportation (Dent, 1991; Rouse et all., 2002) and hotels (Sharma, 2002). Apparently, however, most of the studies have focused on hotels (Harris and Brown, 1998).

The topics of the previews research cover the whole field of cost and management accounting. Regarding hotels, there are studies on strategic management accounting (Collier and Gregory, 1995), the structure of cost accounting system (Brignall at all., 1991; Brignall, 1997), the general and relative importance of the knowledge in accounting techniques in hotels management (Damitio and Schmidgall, 1990), the use of cost accounting information (Downie, 1997; Mia and Patier, 2001), the causes and consequences of implementing yield management (Jarvis et all., 1998; Edgar, 1998), the activity- based modelling of costumer profitability analysis (None and Griffin, 1997; 1999), the roles of and participation on controllers in hotel management (Pickup, 1985; Burgess, 1996; Gipson. 1998; 2002; Subramaniam, 2002), the links between managerial accounting and corporate management (Mongiello and Harris, 2006), the pricing practices and their relationship to cost accounting (Pellinen, 2003), the acceptance and usage of Uniform Systems of Accounts for the Lodging Industry (Kwansa and Schmidgall, 1999) and the budget system characteristics and practices (Sharma, 2002; Brader Brown and Atkinson, 2001, Winnata and Mia, 2005; Schmidgall at all., 1996; Schmidgall and Ninemeier, 1989; Jones, 1998; Brothertone, 2004).

COST ACCOUNTING IN HOTELS

Cost Accounting measures and reports financial and non-financial information related to the organization's acquisition or consumption of resources. It provides information for both financial and management accounting (Hornegren, Bhimani, Datar and Foster, 1997; Hilton, 2000). Cost accounting, as applicable in the hospitality service industries, is a set of concepts and techniques designed to facilitate the accumulation, analysis and utilization of historical and projected per unit cost for use in management decision making (Fay at all., 1971).

While managers in the hospitality service industries require cost accounting information, just as manufacturing firm managers do, the nature of activities in hotels (fixed capacity, perish ability, demand patents, product range, real time activities, production and conception, location and size, labour and capital intensity, and cost structure) makes the cost accounting systems used in manufacturing firms inapplicable (Jones and Lockwood, 1989; Harris, 1992; Harris, 1995).

UNIFORM SYSTEMS AND DEPARTMENTAL ACCOUNTING

The development of systems of uniform accounting (and uniform costing systems) is by no means a recent trend. A significant hospitality accounting development for many years has been the publication of uniform accounting systems for the key sector of the industry, notably hotels, restaurants and clubs in the United States, where their first appearance, for hotels, trace back to 1926. The Uniform System of Accounts for the Lodging Industry (USALI) has become the industry standard, particularly for the large hotel businesses and international and global chains in Europe and US (Harris and Brown, 1998). It relates effectively to the operating characteristics of hotels and it is based on departmental accounting principles, reflecting the fact that rooms, food and beverage and other services are produced in departments (telephone, garage and parking, guest laundry, golf course, golf pro shop, tennis club, tennis pro shop, health club, swimming pool etc) rather than in production lines, as in the case of manufactured products.

Kwansa and Schmidgall (1999), in a recent survey in lodging controllers determined that 76% of lodging operations were using the USALI but only 11% of these controllers responded that the were following it all the time, while 65% indicated "in most of the times".

The data provided in the detailed USALI accounts is used by the management of the lodging firms. The income statement consist of 3 major sections (USALI, 1996; Everett, 1989): a) a section covering departments, that reports the revenues and the directly expenses of profit centres b) a section displaying undistributed operating expenses including administrative and general, marketing, property operation and maintenance, and utility expenses, and c) a section that includes management fees, fixed charges, and income taxes.

For the most lodging properties, undistributed operating expenses, combined with management fees, rent, property taxes, and insurance, comprise a considerable portion of total expenses for period. The process of allocating these overhead costs have been presented in detail by Coltman (1998), Geller and Schmidgall (1980), Schmidgall (1996), Damitio and Schmidgall (1994), Turkel (1993), and even in the USALI (1996).

COST STRUCTURE

Most hotels have a high proportion of fixed cost (Kotas, 1997, Brigmal, 1991; 1997) with approximately tree-quarters of the total cost of a hotel being fixed and uncontrollable. The room department has a fixed cost (mainly department wages and salaries) of 15-20% in relation to its sales volume, and a considerable lower proportion of variable costs (laundry, dry cleaning, domestic supplies, etc). Hotel food and beverage operations entail relatively high fixed costs (mainly kitchen and restaurant wages) as well as high variable costs (food and beverage costs and energy). High fixed costs mean high gross profit margins and this, in turn, means that each addition to total revenue results in a substantial rise in net profit (Kotas. 1973; 1982).

COST ACCOUNTING SYSTEMS AND COST ACCOUNTING TECHNIQUES

Historically, two cost accounting systems, job order costing and process costing have been used to cost product and services and many companies continue to use these traditional costing systems (Garrison and Noreen, 2000). Since the mid–1980s, however, companies have been adopting activity based costing (ABC) for products and customer costing (Briedley et all, 2001). Traditional costing systems use actual departments

or cost centers for accumulating and redistributing costs. ABC systems, instead of using cost centres for accumulating costs, use activities; that is, rather than asking how to allocate a service department expense to a production department, the ABC system designer asks what activities are being performed by the service department's resources. The resource expenses are assigned to activities based on how much of them are required or used to perform activities (Atkinson et all. 2001). Both traditional and ABC systems vary in their level of sophistication but, as a general rule, traditional systems tend to be simplistic (are inexpensive to operate, make extensive use of arbitrary cost allocations, have a low level of accuracy, high cost or errors, etc) whereas ABC systems tend to be sophisticated (are expensive to operate, make extensive use of cost and effect cost allocations, have a high level of accuracy, low cost of errors, etc) (Drury, 2002).

Kaplan and Cooper (1998) suggest that service companies are ideal candidates for ABC even more than manufacturing companies. Their justification for this statement is that most of the costs in services organizations are fixed and direct. Kock (1995), states that ABC is suitable for market–oriented sectors. A UK survey by Drury and Tayles (2000) reported that 51% of the financial and services organizations surveyed, compared to 15% of manufacturing organizations, have implemented ABC.

Fay at all.,(1971) show the possible use of traditional costing systems in the hospitality services industry. None and Griffin (1997) propose that ABC is the most effective and accurate costing method for Customer Profitability Analysis (CPA) in a hotel environment. Dunn and Brooks (1990) and Noone and Griffin (1999) document the implementation of CPA using ABC. However, the use of ABC in the hotel industry is minimal (Tai, 2000) with an informal survey by Graham (quoted in Tai, 2000) identifying no hotels in Europe to have adopted this approach. Tai interviewed a range of industry personnel in order to identify the reasons for this and found that, although there was considerable knowledge of the theory of ABC, there was a low understanding of how it might be used in a hotel context (Burgess and Bryant, 2001).

Brignall at all. (1991) studied a hotel chain and determined three main considerations that shaped their product cost accounting practices a) valuating stocks had the least significance for the tasks of cost accounting b) calculating a full margin was used less than calculating a contribution margin and c) cost planning and control focussed on cost centres according to the functions of the organisation, because the products are obviously not particular points for cost analysis. Brignall suggests (1997)

that in shop services (e.g. hotels) standard costing systems will be rare, but some service shops delivering standardized services may find that investment in a standard costing system may be a useful competitive weapon. He also reported that shop services do not have full cost service systems. The cost management problem in shop services is how to maximize the use of fixed capacity, which leads to cost control via direct – variable costing.

Pellinen (2003) in her survey in 6 tourism enterprises found that the product cost accounting system of most of them could be characterized as variable costing. Only the direct costs, the causes of which were possible to measure objectivity based on the consumption of physical resources, were usually allocated to products.

METHODOLOGY

Sample characteristics and data collection

The sample surveyed included the leading Greek hotel enterprises. The criteria used for the selection of the hotels where both their sales revenues and net profit for the year 2005. The research was conducted between March and June 2006 and was realised in two phases. Specifically, in the first phase a participation form, accompanied by a cover letter where we made a brief reference of the main goals of the study, was sent to the selected companies. Financial managers were asked to indicate the type(s) of cost accounting practice(s) used by their hotels, as well as to state correspondence information in order to address the survey questionnaire, in case they were interested. In the second phase of the research, the survey questionnaire was designed and sent to the sampled hotels. Before the finalization of the questionnaire, a pilot test took place. More specifically, interviews were conducted with four Chief Accountants who had a long experience in cost accounting practices in order to make sure that the questionnaires' content was easy to understand. Through this testing we managed to account for omissions or vagueness in the expressions used to formulate the questions.

The participation form was sent to 146 hotel companies and 98 firms responded positively in the first phase of the survey (65% response rate). For the companies that did not show interest in the research, the main reasons they cited for non-response was the lack of time and the fact that answering questionnaires was not one of their top priorities. The hotels that completed the participation forms were sent the questionnaire and 85

completed questionnaires were finally received during the second phase of the survey. The response rate was 58%. The questionnaires were answered at a percentage of 96% by executives in the top hierarchy of the financial departments (financial managers and chief accountants) that have firm knowledge of the cost accounting information used within their companies. Thus, we believe that the answers can be considered reliable.

The financial, geographical and company demographic characteristics of the final sample of hotel enterprises are shown in Tables 1 and 2.

Table 1. Sales revenue date for the sample of the hotel enterprises (2005)

	Mean	**Std. Deviation**	**Maximum**	**Minimum**
sales revenue for the year 2005 (€ mil)	9.85	12.25	3.3	99.5

Table 2. Category, geographical area, number of beds, management status and type of hotels that participated in the survey

	N	**%**
Categories		
5 stars	30	35.3
4 stars	48	56.5
3 stars	7	8.2
Geographical Area		
Athens	17	20
Crete	24	28.2
Aegean islands	22	25.9
Ionian islands	12	14.1
Macedonia	6	7.1
Other	4	4.7

No of beds		
Up to 300	6	7.1
300 -350	4	4.7
350-500	20	23.5
Over 200	55	64.7
Company management status		
Private company	43	50.6
Member of national chain	27	31.8
Member of multinational chain	15	17.6
Type of Hotel		
Resort	34	40
City hotel	51	60

RESULTS

The use of USALI

The survey revealed that only 11.8% of hotels in Greece use the Uniform System of Accounts for Lodging Industry (USALI). According to our data, 53.3% of hotels that are members of a multinational chain use the USALI, while only 2.9% of hotels that are private companies or members of national chains use this system. Statistical analysis shows that there is a statistical significant relation between these two variables (Table 3).

Table 3. Relation between the use of USALI and management status of the hotel

		Other	**Members of international chain**	**Total**		
Use USALI	Yes	2 (2.9%)	8 (53.3%)	10	Fisher exact test	Exact Sig. (2- sided)
	No	68 (97.1%)	7 (46.7%)	75		0.021
	Total	70 (100%)	15 (100%)	85		

COST STRUCTURE

The analysis of the empirical evidence showed that the majority (31.9%) of the hotels' fixed cost accounts for 65%–75% of the total cost. As shown in Table 4, 27.1% of the hotels' fixed cost accounts for more than 75% of the total cost.

Table 4. Fixed cost as a proportion of the total cost of the hotel enterprises that participated in the survey

	N	**%**
up to 45%	6	7.1
45 – 55%	10	11.8
55 - 65%	18	21.2
65 - 75%	28	31.9
over 75% -	23	27.1
Total	**85**	**100**

Also, the results of the survey showed that hotels face a high proportion of indirect cost, which was estimated at 47% of total cost (Table 5). These results confirmed the main findings reported in existing literature.

Table 5. Indirect cost as a proportion of total cost of hotels that participated in the survey

	Mean	**Std. Deviation**	**Maximum**	**Minimum**
Indirect cost as a proportion of total cost	46.93	7.662	30	63

The analysis of the data also revealed that resorts have a higher proportion of indirect cost (mean value = 49.21, Std. deviation = 6.732) than city hotels (mean value = 45.21, Std. deviation = 7.928). Statistical analysis shows that there is a statistical significant difference between these two variables (Table 6).

Table 6. Resort and City Hotels mean value of indirect cost as a percentage of total cost

	Resort hotels mean value	City hotels mean value	Mean difference	t – value (p value)
Proportion of indirect cost to total cost	49.21	45.41	3.79	2.292 (0.024)

COST ACCOUNTING SYSTEMS AND COST ACCOUNTING TECHNIQUES

Cost accounting systems

The survey revealed that 76.5% of the hotels use traditional cost accounting systems and 23.5% use ABC systems. 58.5% of the hotels that use traditional cost accounting systems apply job order costing system and 41.5% apply process costing and job order costing. Thus, 23.5% (20 firms) of the sample companies have adopted an ABC system and 76.5% (65 firms) have not (Table 7).

Table 7. Costing systems of the hotel enterprises that participated in the survey

	N	%
ABC costing system	20	23.5
Traditional costing systems	65	76.5
Job order costing	38	58.5
Job order and process costing	27	41.5
Total	**85**	**100**

Hotel enterprises that apply traditional cost accounting systems, tend to rely on two second stage allocation bases - namely, sales (84.8%), direct labour cost (69.2%) and direct labour hours (38.5%). In contrast, hotels that apply ABC systems, used as cost drivers mostly the number of

room nights (100%), the number of stays (100%), sales (75%), the number of covers (60%) and the number of customers (35%).

Table 8. Allocation bases used by traditional and ABC costing systems

	N	%
Traditional costing systems		
Sales	56	84.8
Direct labour cost	45	69.2
Direct labour hours	25	38.5
Other	4	6.1
ABC systems		
No of room nights	20	100
No of stays	20	100
Sales	15	75
No of covers	12	60
No of customers	7	35
Other	2	10

From the survey it was concluded that 52.9% of the hotels, whether they use traditional or ABC systems, apply normal costing and 47.1% apply actual costing. Thus, the majority of hotels allocate overhead cost using budget overheads.

The majority of resorts apply normal costing (79.4%), while only 51% of city hotels make the same choice. Statistical analysis shows that there is a statistical significant relation between these two variables (Table 9).

Table 9. Relation between overheads cost handling and type of hotel

	Resorts	**City hotels**	**Total**		
Normal costing	27 (79,4%)	26 (51%)	54	Fisher exact test	Exact Sig. (2- sided)
Actual costing	7 (20,6%)	25 (49%)	31		0.021
Total	**34 (100%)**	**51 (100%)**	**85**		

As shown in Table 10, cost is mainly monitored in a profit center (100%) and cost center basis (82.4%) while less hotels monitor it by room night (61.2%), customer category (70.6%) and room (52.9%).

Table 10. Cost monitoring choices by hotels that participated in the study

	N	%
Profit center	85	100
Cost center	70	82.4
Customer	60	70.6
Room night	52	61.2
Room	45	52.9

Furthermore, the activities monitored by the majority of the Hotels that use Activity Based Costing include housekeeping (100%), check in/out (100%), reservation (75%), marketing (16%), general administration (80%), food production/service (80%) and beverage production/service (45%) (Table 11)

Table 11. Activity monitoring choices by hotels that participated in the study

	N	%
Housekeeping	20	100
Check in/out	20	100
Reservation	15	75
Marketing	16	80
General administration	16	80
Food production/service	16	80
Beverage production/service	10	45
Meeting room administration	4	20
Switchboard operation	5	25
Main courante	5	75
Other	4	20

ABC systems in lodging industry are not excessively detailed as they do not include a big number of cost drivers (mean value 6.55) and calculate the cost of a rather small number of activities (mean value 3.95) (Table 12). Moreover, there is a statistically significant positive correlation between these two variables, i.e. number of cost drivers and number of activities estimated at a 10% significant level. That means that the more (fewer) activities an ABC system includes the more (fewer) drivers are used (Table 13).

Table 12. Number of activities and cost drivers used in ABC systems of hotels

	Mean	Std. Deviation	Maximum	Minimum
Number of activities	6.55	1.605	4	9
Number of cost drivers	3.95	1.432	2	6

Table 13. Relation between number of activities and cost drivers

		No of drivers	No of activities	
Kendall's Tau_b	No of drivers	1.000	0.543	Sig.
	No of activities	0.543	1.000	0.003

Cost accounting techniques

According to our data, 76.5% of hotels apply full - absorption costing and 44.7% variable costing. Only 20% apply standard costing (Table 14).

Table 14. Costing techniques of the sample hotel enterprises

	N	%
Variable costing	38	44.7
Full - absorption costing	65	76.5
Standard costing	17	20

ABC adopters and ABC non – adopters

Cost accounting literature suggests that firms that have adopted ABC systems have some characteristics, which distinguish them from companies that have not (Anderson and Young, 1999; Bjornenak, 1997; Groot, 1999). Cooper (1991) has identified cost structure, competition and product diversity as factors conducive to the introduction of ABC. Innes et all (2000) and Brown et all (2001) found that size influences the decision to adopt or reject ABC.

According to our data, there are statistically significant differences in cost structure as well as size, in term of sales revenue, between ABC adopters and ABC non-adopters. In contrast, the differences in capacity, in terms of number of beds, and in services diversity, were not statistically significant. Hotels that use ABC have a higher percentage of indirect cost and higher sales than those that do not use ABC.

Table 15. Differences between ABC adopters and ABC non-adopters

	ABC non-adopters mean rank (N = 65)	**ABC adopters mean rank (N = 20)**	**Mann – Whitney U**	**Wilcox n**	**Sig.**
Sales revenue for the year 2005	40	52.75	455	2600	0.043
	ABC adapters mean value (N = 65)	ABC adapters mean value (N = 20)	Mean difference	t – value	Sig.
Indirect cost to total (%)	44.63	54.50	-9.77	-5.907	0.001
No of beds	565.45	668.89	103.44	1.219	0.226
No of services variants	7.25	7.90	-6.38	-0.65	0.525

An important finding was that there are not statistically significant differences between hotels that apply ABC and hotels that do not, as regards their category, geographical area and type (Table 15). Based on the statistical analysis, we came to the conclusion that 75% of Hotels that use ABC monitor cost on a customers' category basis, while that percentage for non-users is as low as 15,4%.

Table 16. Relation between cost per customer calculation and ABC adoption

		Cost per customer				
		Yes	**No**	**Total**		
ABC	Non adopters	10 (15.4%)	55 (84.6%)	65 (100%)	Pearson Chi - Square	Exact Sig. (2- sided)
	Adopters	15 (75%)	5 (25%)	20 (100%)	20.753	0.001
	Total	**25**	**60**	**85**		

The above discussion is based on a separate analysis of the factors assumed to influence the adoption of ABC. It is also possible that a combination of factors was affecting the rate of adoption. In order to check for, all combinations of variables were tested in a discriminant analysis.

The best discriminating function was obtained by combining cost structure (X_1= proportion of indirect cost to total cost), and boy cost per customer calculation (X_2)

The following function was produced:

$$\text{Discriminant score} = 0.711\ X_1 + 0.588\ X_2$$

Eighty four, seven per cent of original grouped cases correctly classified. The above function (Wilks' $\lambda = 0.613$, Sig. 0.001) classified correctly 75% of ABC adopters and 87.7% of non-adopters.

DISCUSSION – CONCLUSIONS

This study presents the results of a survey in the leading hotel enterprises of the Greek hospitality sector. The results of this survey are in line with the existing literature in hotels accounting regarding the high level of fixed costs. Indeed, for the majority of the hotels that participated in this study (60%) fixed cost consists of more than 65% of total cost. Additionally, these enterprises face a high proportion of indirect expenses (mean value is estimated at 53%). The statistical analysis showed that resorts face higher indirect costs than city hotels.

The majority of the hotels (88%) do not use the USALI system? that is mainly adopted by hotels members of multinational chains. Field's

(1995) view that the US system uses source of terminology to be incorporated in hotel management contracts agreements is confirmed. Another finding of the research is that the majority of hotels (76,5%) use traditional cost accounting systems. Most of them (57,7%) apply job order costing and the rest of them apply job order costing, as well as process costing.

ABC diffusion in hospitality industry in Greece is considered very satisfactory. This research reported higher adoption rates than ones presented in previous studies in lodging industry (Tai, 2000). Our findings confirm the increasing pace of ABC adoption in Greece in recent years (Cohen et. all, 2005). The survey's results demonstrate that the majority of the ABC systems in hospitality industry are not excessively detailed, as they include a small number of cost drivers and calculate the cost of a rather small number of activities that mainly include housekeeping, check in/out, reservation, food production/service, marketing and general administration.

Through their cost accounting systems hotels determine cost per profit and cost center and very few of them per customer category, room night and room. The hotels that follow traditional cost accounting systems for imputing cost on cost objects use as imputing basis the number of sales and the cost of direct working, while those that use ABC use the number of room nights and the days of staying at the hotel. It should be noted that hotel enterprises mainly use normal cost accounting. This conclusion is in line with the existing literature, which reports that normal cost accounting fits companies facing fluctuations in production volume. The statistical analysis showed that resorts use normal than actual cost accounting more frequently, and this could be attributed to the fact that they face higher fluctuations in their production volume than city hotels.

Based in our findings, ABC adopters and non–adopters appear no be different in terms of cost structure and sales. On the contrary there doesn't seem to be any substantial differences as regards their category, number of beds, their type and the number of offered services. The analysis proved that hotels that determine cost per customer category mainly use activity based costing. This conclusion confirms the findings that appear in literature that cost accounting can be effectively combined with the profitability analysis of the customer (None and Griffin,1997;1999; Dunn and Brooks,1990)

Hotels use standard cost accounting less frequently than other cost accounting techniques, confirming Brignall (1997) findings that standard cost accounting is more appropriate for manufacturing industries.

The study contributed to what is already known about cost accounting practices in hospitality industry in Greece. In the future the findings of this survey could be compared to Cost Accounting practices in other countries. Also, the cost accounting systems of firms that use activity based costing could be studied in depth in order to examine the perceived benefits and problems from their implementation. Finally, the use of cost accounting information (budgeting, decision making, and performance evaluation) by hotel enterprises could also be examined, so as to trace possible differences between firms that apply traditional and ABC systems.

REFERENCES

Ahrerns, T. & Chapman, C. (2002). The structuration of legitimate performance measures and management: day to day contests of accountability in a UK restaurant chain. *Management Accounting Research*, Vol. 13, No.2, pp.151-171.

Anderson, S. W. & Young S. M. (1999). The impact of contextual and process factors on the evaluation of the activity based costing systems. *Accounting, Organizations and Society*, Vol. 24, No.1, pp.252-559.

Atkinson, A., Banker, R., Kaplan, R. & Young, M. (2001). *Management Accounting*. New Jersey, Prentice Hall.

Berts, K. & Kock, S. (1995). Implementation considerations for activity based costing in service firms. *Management Decisions*, Vol. 33, No.6, pp.57-63.

Bjornenak, T. (1997). Diffusion and accounting: the case of ABC in Norway. *Management Accounting Research*, Vol. 8, No.3, pp.3-14.

Brader Brown, J. & Atkinson, H. (2001). Budgeting in the information age: a fresh approach. *International Journal of Contemporary Hospitality*, Vol. 13, No.3, pp.136-143.

Brignall, T., Fitzgerald, L., Silvestro, R., Johnson, R. (1991). Product costing in service organizations. *Management Accounting Research*, Vol. 2, No. 2, pp. 227-248.

Briedley, J., Cowton, C. & Drury, C. (2001). Research into product costing practices: a European perspective. *The European Accounting Review*, Vol. 10, No.2, pp.215-256.

Brothertone, B. (2004). Critical success factors in UK budget hotel operations. *International Journal of Operations & Production Management,* Vol. 24, No.9, pp.944-969.

Brown, D., Booth, P. & Giacibble, F. (2001). Organizational influences, ownership, and the adoption of ABC in Australia firms. *Working Paper No.46.* School of Accounting, University of Technology, Sydney: June.

Burgess, CL. (1996). A profile of hotel financial controller in the UK, United States and Hong Kong. *International Journal of Hospitality Management*, Vol. 15, No.1, pp.19-28.

Burgess, C. & Braynt, K. (2001), Revenue management - the contribution of the finance function to profitability. *International Journal of Contemporary Hospitality Management*, Vol. 13, No.3, pp.114-150.

Collier, P. & Gregory, A. (1995). Strategic Management Accounting: a UK hotel sector case study. *International Journal of Contemporary Hospitality Management*, Vol. 7, No.1, pp.16-21.

Coltman, M. (1998). *Hospitality Management Accounting*. New York, Wiley J.

Cooper, R. (1991). ABC: the right approach for you? *Accountancy,* January, pp.70–72.

Dammitio, J. & Schmidgal, R. (1994). Allocation of overhead cost in lodging properties. *Journal of Hospitality Financial Management*, Vol. 3, No.1, pp.45-55.

Damitio, J. W. & Schmidgall, R. S. (1990). Managerial Accounting skills for lodging managers. *Hospitality Research Journal*, Vol. 14, No.1, pp.69-75.

Dent, J. F. (1991). Accounting and organizational cultures: a field study of the emergence of a new organizational reality. *Accounting, Organization and Society,* Vol. 16, No.8, pp.705-732.

Downie, N. (1997). The use of accounting information in marketing decisions. *Hospitality Management,* Vol. 16, No.3, pp.305-312.

Drury, C. (2000). *Management and Cost Accounting*. London, Thomson Learning Europe.

Drury, C. & Tayles, M. (2000). *Cost system design and profitability analysis in UK companies*. London, Chartered Institute of Management Accountants.

Edgar, E. (1997). Capacity management in the short break market*. International Journal of Contemporary Hospitality Management*, Vol. 9, No.2, pp.55-59.

Educational Institute of the American Hotel and Motel Association. (1996). *Uniform System of Accounts for the Lodging Industry (USALI)*. New York, East Lancing, MI.

Everett, M. (1989). Managerial accounting systems: a decision making tool. *The Cornell Hotel and Restaurant Administration Quarterly*, Vol. 30, No.1, pp.46-51.

Fay, C. Rhoads, R. & Rosenblatt, R. (1976). *Managerial Accounting for the hospitality service industry*. Iowa, Brown Company Publishers.

Field, H. M. (1995). Financial management implications of hotel management contracts agreements: a UK perspective, in Harris, P. J. (Ed). *Accounting and Finance in the International Hospitality Industry,* Oxford: Butterworth- Heinemann.

Garrison, R. & Noreen, E. (2000). *Management Accounting*. Chicago, Mc–Graw Hill Higher Education.

Geller, A. & Schmidgall, R. (1980). Cost Allocation under USALI. *The Cornell Hotel and Restaurant Administration Quarterly*, Vol. 21, No.3, pp.31-39.

Gipson, D. (1998). A qualitative research study on perceptions held by Hong Kong hotel financial controllers in decision making tools. *International Journal of Hospitality Management,* Vol. 17, No.1, pp.65-81.

Gipson, D. (2000). On property hotel financial controllers: a discourse analysis approach to characterizing behavioural roles*. Hospitality Management,* Vol. 21, No.1 pp.5-23.

Groot, T. L. C. M. (1999). ABC in US and Dutch food companies. *Advances in Management Accounting,* Vol. 7, No.1, pp.47-67.

Harris, P. & Brown, B. (1998). Research and Development in hospitality accounting and financial management. *Hospitality Management,* Vol. 17, No.1, pp.161-181.

Harris, P. (1992). *Profit Planning.* Oxford, Buttterworth-Heinemann.

Harris, P. (1995). A development strategy for the hospitality operations management curriculum. *International Journal of Contemporary Hospitality Management,* Vol. 7, No.5, pp.29-32.

Hilton, R., Maher M. & Selto K. (2000). *Cost Management: Strategies for Business Decisions.* London, Mc–Graw Hill Higher Education.

Horngren C., Bhimani A., Datar, S. & Foster, G. (1997). *Management and Cost accounting.* New York, Prentice Hall.

Jarvis, N., Lindh, A. & Jones, P. (1998). An investigation of the key criteria affecting the adoption of yield management in UK hotels. *Progress in Tourism and Hospitality Research,* Vol. 4, No.3, pp.207-216.

Jones, A. & Lockwood, P. (1995). *The management of hotels operation*. London, Cassell.

Jones, T. (1998). UK hotel operators' use of budgetary procedures. *International Journal of Contemporary Hospitality Management*, Vol. 10, No.3, pp.96-100.

Innes, J., Mitchell, F. & Sinclair, D. (2000). Activity based costing in UK's largest companies: a comparison of 1994 and 1999 survey results. *Management Accounting Research*, Vol. 11, No.3, pp.349-362.

Kaplan, R. S. & Cooper, R. (1998). *Cost and effect: Using integrated systems to drive profitability performance.* Harvard, Harvard Business School Press.

Kotas, R. (1973). Market Orientation. *Hotel Catering, and Institutional Management Journal,* June, pp.5-7.

Kotas, R. (1982). The European hotel: methodology for analysis of financial operations and identification of appropriate business strategy. *Hospitality Management*, Vol. 1, No.2, pp.79-84.

Kotas, R. (1997). *Management accounting for Hotels and Restaurants*". London, Blackie Academic and Professional.

Kwansa, F. & Schmidgall, R. (1999). The Uniform System of Accounts for the Lodging Industry. *The Cornell Hotel and Restaurant Administration Quarterly,*Vol.40, No.6, pp.88-94.

Mia, L. & Patier, A. (2001). The use of management accounting systems in hotels: an exploratory study. *Hospitality Management*, Vol. 20, No.2, pp.111-128.

Mongiello M. & Harris, P. (2006). Management accounting and corporate management: insights into multinational hotel companies. *International*

Journal of Contemporary Hospitality Management, Vol. 18, No.5, pp.364-379.

Noone, B. & Griffin, P. (1997). Yield management and costumer profitability analysis. *International Journal of Contemporary Hospitality Management*, Vol. 9, No.2, pp.75-79.

Noone, B. & Griffin, P. (1999). Managing the long term profit yield from market segments in a hotel environment: a case study of on the implementation of costumer profitability analysis. *Hospitality Management,* Vol. 18, No.3, pp.111-128.

Olson, O., Guthrie, J. & Humphrey, P. (1998). *Global Warning! Debating international developments in new public financial management*. Oslo, Cappalen Akademisk Forlag.

Pellinen, J. (2003). Making price decisions in tourism enterprises. *Hospitality Management*, Vol. 22, No.3, pp.217-235.

Pickup, I. (1985). Budgetary control within the hotel industry. *International Journal of Contemporary Hospitality Management*, Vol. 4, No.4, pp.149-155.

Potter, G. & Schmidgall, R. (1999). Hospitality management accounting: current problems and future opportunities. *Hospitality Management*, Vol. 18, No.5, pp.387-400.

Rouse, P., Putterill, M. & Ryan, D. (2002). Integrated performance measurement design: insights from an application in aircraft maintenance. *Management Accounting Research,* Vol. 13, No.3, pp.229-248.

Schmidgall, R. (1996). *Hospitality Industry Managerial Accounting*. East Lansing, Educational Institute of American Hotel and Motel Association.

Schmidgall, R. & Ninemeier, J. (1987). Budgeting in hotel chains: coordination and control. *The Cornell Hotel and Restaurant Administration Quarterly*, Vol. 28, No.4, pp.79-84.

Schmidgall, R., Borchgrevink, C. & Begnum, O. (1996). Operations budgeting practices of lodging firms in the United States and Scandinavia. *Hospitality Management*, Vol. 15, No.2, pp.89-203.

Sharma, D. (2002), The differential effect of environmental dimensionality, size, and structure on budget system characteristics in hotels. *Management Accounting Research*, Vol. 13, No.1, pp.101-130.

Subramaniam, N., McManus, L. & Mia, L. (2002). Enhancing hotel managers' organisational commitment: an investigation of the impact of structure, need for achievement and participative budgeting. *Hospitality Management*, Vol. 21, No.2, pp.303–320.

Tai, H. (2000). *The application of activity based costing in hotel context, Unpublished Msc Thesis*. Oxford, UK: Oxford Brooks University.

Turkel, S. (1993). Futher thoughts on unallocated cost accounting for food and beverage operations. *Lodging*, Vol. 18, No.1, pp.1-5.

Winata, L. & Mia, L. (2005). Information technology and the performance effect of managers' participation in budgeting: evidence from the hotel industry. *Hospitality Management,* Vol. 24, No.1, pp.21–39.

SUBMITTED: FEBRUARY 2007
REVISION SUBMITTED: APRIL 2007
ACCEPTED: JUNE 2007
REFEREED ANONYMOUSLY

Odysseas Pavlatos (paulatos@altecnet.gr; opaulatos@yahoo.com) is a Lecturer in Accounting at the Technological Institute of Chalkida, 23 Attalou Str., 11631, Pagrati. Athens, Greece.

Ioannis Paggios (pagso@unipi.gr) is a Full Professor in Cost Accounting at the University of Piraeus, Department of Business Administration, 67 Aklionidon Str., Voula, Athens, Greece.