

# Public Sector Cost Accounting and Information Usefulness in Decision-making

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The logo for 'dabar', featuring a stylized red and black graphic above the word 'dabar' in a bold, lowercase font.

DIGITALNI AKADEMSKI ARHIVI I REPOZITORIJI



# Public sector cost accounting and information usefulness in decision-making

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Article\*\*

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## Abstract

*This paper explores the use of accounting information at the local and regional government level in Croatia. Accountants provide cost accounting information mainly on request from internal users. The usefulness of this information is observed from the accountant viewpoint, in order to perceive accountants' understandings of how decision-makers use accounting data. A questionnaire was used as a research instrument in order to assess the level of accounting information use and usefulness among governing politicians and other public managers. Empirical results indicate that the legal representatives of the budgetary users (public managers) are more inclined than governing politicians to use accounting information in decision-making. Cost accounting information is most useful for planning and control and least beneficial when prices of public services are being set. Public sector cost accounting in Croatia is well implemented and constraints on its further development are not highly in evidence.*

*Keywords: public sector accounting, cost accounting, public management*

## 1 INTRODUCTION

The accountability of politicians and public managers for their management of public finances has been studied from various aspects (e.g. Ranson, 2003; Bovens, Schillemans and Hart, 2008; Samararatunge, Alam and Teicher, 2008; Ngwakwe, 2012; Bach, 2020). Saliterer and Korac (2013: 503) argued that boundaries between public sector, private sector, and non-profit organizations are fading because “the delivery of public services is increasingly characterized by hybrid forms of organization, variously described as partnerships, collaborations, networks, alliances and, most prominently, as public-private partnerships”. These alterations in governance structures question the traditional meaning of accountability and lead to a shift towards accountability based on performance, where accounting information becomes important. Moving from cash-based towards accrual-based public sector accounting could contribute to a new aspect of public accountability that should support the assessment of efficiency and effectiveness of public organizations. The use of accounting-based performance information to rationalise decision-making may lead to better public service performance (George et al., 2020). Thus, the increase of public sector service performance should positively affect perceived accountability.

Many countries have been introducing changes in public sector accounting during the last two decades. These changes have made the use of financial information more important in the public sector (Jorge, Jorge de Jesus and Nogueira, 2019: 542). The first step in accounting reform is a shift from cash-based to accrual-based accounting. Accrual based public sector accounting enabled more appropriate public management by providing relevant information for decision-making (Ezzamel et al., 2005; Jorge, Jorge de Jesus and Nogueira, 2019; George et al., 2020).

Public sector accounting should be a support in “delivering more appropriate, more accountable and better public management, as well as strengthening democratic

processes” (Ezzamel et al., 2005: 58). Therefore, it is necessary that key public sector stakeholders, including politicians, are familiar with accounting information if they want to make it the basis of debate. In most democracies, public managers and politicians are expected to use accounting information (Guarini, 2016). So far, scholars (Ter Bogt, 2004; Askim, 2007; Liguori, Sicilia and Steccolini, 2012; Liguori and Steccolini, 2018; Salitater et al., 2019; George et al., 2020) have examined the use of accounting information by politicians and/or public managers but the view of public sector accountants on this matter has largely been underestimated (Ouda and Klischewski, 2019). However, since public sector accountants are providers of accounting information, their opinion on its use and usefulness might well be more objective.

This paper explores implementation of public sector cost accounting as a source of relevant information for politicians and public managers in the decision-making process. The usefulness of cost accounting in public entities is also examined. Furthermore, the obstacles of public sector cost accounting development are investigated from the accountants’ perspective.

The remainder of paper is organised as follows. The next section consists of a review of the literature on public sector financial accounting with the emphasis on the use of accounting information by politicians and other public managers. Prior studies on public sector cost accounting are summarised in the third section. Based on the conceptual and empirical insights, hypotheses are formulated and explained in the fourth section. The research methodology is explained in the fifth section where the elaborated results are presented. Concluding remarks are stated in the final section.

## 2 PUBLIC SECTOR ACCOUNTING AND THE USE OF ACCOUNTING INFORMATION

Historically, public sector accounting was cash based due to the budgeting purposes. Budgeting, as a planning and control mechanism, is still an important process at all levels of government. The budget can be defined as “a political act which translates political goals into appropriations of financial resources” (Liguori, Sicilia and Steccolini, 2012: 905). However, public sector accounting systems worldwide have undergone significant changes during recent decades. Countries have introduced accrual and modified accrual financial accounting for governmental entities although some of them still use cash-based accounting (for instance at central government level). In order to make public sector accounting information comparable, the International Public Sector Accounting Standards (IPSAS) were developed but even though they have been available more than two decades, they are only partially adopted in some countries. On the other hand, the European Commission (EC) has taken serious steps by establishing harmonized public sector accounting standards for EU member countries (Mann et al., 2019). Since the IPSAS have been criticized for being too similar to the accounting standards for the private sector, the EC initiated the development of the European Public Sector Accounting Standards (EPSAS). EPSAS are not yet published and therefore not in use. Nevertheless, EU member

countries have gradually undergone a transformation of their public sector accounting. This modernization of public sector accounting system has been often translated into an increased focus on performance information. Performance information normally entails the quantity and quality of government activities and services as well as efficiency and effectiveness (Van Helden, 2016). Lau, Lonti and Schultz (2017: 182) argued that public sector productivity (which has a significant impact on the performance of national economy and societal well-being) “cannot be understood without the ability to measure it, which requires good quality and, if possible, internationally comparable input and output measures of public sector services”. Therefore, the role of accounting information in this context should not be underestimated. Contemporary public sector accounting is complex and offers wide range of financial information.

There are several users of accounting information in the public sector such as citizens (also referred in the literature as the public), public managers, legislative and other governing bodies, investors and creditors, internal and external auditors, and economic and financial analysts. Governing politicians are considered the primary users of public sector budgeting and financial information since they are representatives of citizens and therefore the decision-makers (Giacomini, Sicilia and Steccolini, 2016; Jorge, Jorge de Jesus and Nogueira, 2019; Ouda and Klischewski, 2019). Van Helden (2016: 535) pointed out that politicians often face complexities in decision-making, as when they are choosing among different options in order to solve a problem or when they are accepting the proper information sources. Ezzamel et al. (2005: 58) noted that there is “a danger to democracy where accounting information is extensively used in decision-making but, at best, only understood, or partially understood, by a small number of politicians”. Ter Bogt (2004) found out that politicians in Dutch municipalities rely much more on information from informal and oral sources than on data from the annual reports, budgets, and interim reports (which contain formal, written, largely numeric accounting information). Giacomini, Sicilia and Steccolini (2016: 488) noticed that the level of political conflict affects the quantity and the type of information used. Accounting information is used for the sake of reassurance when there is little political conflict but when political conflict rises, this information could be misused in rhetoric. Ezzamel et al. (2005) investigated the use of accounting information among the politicians in the Northern Ireland Assembly and commented that many political decision makers are unaware of the meaning of some significant accounting information. Empirical research on Austrian parliament members (Salitater et al., 2019: 839) revealed that some politicians stated, “... more frequent reports on the progress toward outcome targets would make sense if the quality of performance information were higher”. There are also governing politicians who believe that it is the right but also the duty (of parliament members) “to proactively seek performance information more frequently” (Salitater et al., 2019: 839). A study on small Italian municipalities showed that politicians used both financial and non-financial information to reach the final decision especially when they are faced with high pressure from the citizens (Giacomini, Sicilia

and Steccolini, 2016: 488). Financial and non-financial information is nowadays encompassed by the integrated report that represents a new form of reporting. An integrated report focuses on value creation process and includes information on environmental, social and governance (ESG) activities; this represents a new trend in public sector reporting (Manes-Rossi and Orelli, 2020).

Analysing relationship between accounting and accountability in the South African public sector, Ngwakwe (2012: 414) noticed that the main factors inhibiting public financial accountability and service delivery are: limited accounting knowledge and financial skills, corruption, political "godfatherism" and insufficient transparency in public financial management.

### 3 COST ACCOUNTING IN PUBLIC ENTITIES

Cost accounting is an accounting subsystem that is usually considered an internally oriented accounting procedure. Unlike financial accounting, cost accounting is not mandatory in any organisation. The main task of cost accounting is to provide information about costs and processes to managers and other, mainly internal, stakeholders (Bertoni, De Rosa and Dražić Lutilsky, 2017: 110). Thus, data delivered by cost accounting should be decision-relevant information.

Accountants who work in public sector cost accounting must carefully design the reports on costs, which should be tailored according to public management needs and preferences. Because of its significance to efficient and effective public management, senior government officials now have an important role in the implementation and further development of cost accounting (IFAC, 2000).

In order to implement advanced cost accounting techniques and methods public sector entities should apply accrual accounting (Bertoni, De Rosa and Dražić Lutilsky, 2017; Jovanović, Dražić Lutilsky and Vašiček, 2019). A comprehensive cross-country study (IFAC, 2000) has revealed that for governments employing a modified accrual-based accounting, a stand-alone cost accounting system is quite easy to implement if they have asset registers that can be used to calculate amortization and depreciation. Thus, governments with accrual-based financial accounting are in a position to develop useful managerial cost information (through cost analysis available from their cost accounting records). National regulations and a proactive approach are also playing a crucial role in the application of cost accounting (Jackson and Lapsley, 2003; Dražić Lutilsky and Dragija, 2012).

Public sector cost accounting has several basic management functions (Dražić Lutilsky, Vašiček and Vašiček, 2012: 419):

- Budgeting – Budgets can be defined and carried out on a cash basis or on an accrual basis. Incurred costs are comparable with budgets if they are formulated on an accrual basis;
- Cost control and cost reduction – Information on costs enables identification of non-value-added activities that must be reduced;

- Pricing and fee setting – Information on costs is important in the decision-making process for setting prices and user fees for government-provided goods and services;
- Performance measurement – Cost efficiency measures of service efforts and measures of accomplishments as well as other measures provide the combination of financial and non-financial feedback on the success of public sector entities;
- Programme evaluation – The cost of government programmes combined with suitable performance measurements can be of assistance to the public and legislators in assessment of the programmes;
- A wide range of economic choice decisions – Comparison of costs between alternatives is required when public sector manager has to make a choice, for instance to accept or reject a proposal for a government capital project or whether to continue delivering a particular public service.

According to the analysis performed by IFAC Public Sector Committee (2000) the extent of public sector cost accounting application and development varies from country to country. The usage often depends upon the objectives of the different types of public sector entities. A study on Swiss sub-national governments (Flury and Schedler, 2006) revealed that accounting information on the cost-performance relationship is necessary for budgeting and performance agreements. Empirical research carried out on Portuguese local government showed that due to difficulties in data collection and interpretation in cost accounting systems, cost information is moderately used in decision-making (Carvalho, Gomes and Fernandes, 2012). In the past, cost accounting in United States (U.S.) government entities was viewed as a significant aid for dealing with fiscal stress but nowadays it also helps in setting adequate rates (for services that are provided via user charges). In addition, cost accounting provides accurate information that puts performance into perspective, and enables strategic decision-making (Mohr, 2015). When analysing cost accounting in some European universities, Dražić Lutitsky and Dragija (2012: 43) summarised the benefits of the full costing application and these are: better and efficient resource allocation, improved strategic decision-making, more comprehensible internal data, and greater objectivity in decision-making basis for budget allocation. On the other hand, the adoption of cost accounting can face many obstacles. Jovanović, Dražić Lutitsky and Vašiček (2019: 3765) analysed cost accounting in the Croatian and Slovenian healthcare systems and found out that implementation of full costing method has several constraints among which IT support is perceived as the most important (in both countries) followed by the lack of financial resources. Bertoni, De Rosa and Dražić Lutitsky (2017) compared cost accounting practices in public hospitals in Italy and Croatia and concluded that there are differences in accounting legislation in those two countries that affect the recording of the costs and cost allocation as well. According to their findings, a Croatian public hospital has greater use of cost accounting information in the decision-making process (for allocation of budget funds, for planning and cost control, for the approval of the implementation of specific programs, when

purchasing the assets, for monitoring the effectiveness of the services provided and fiscal accountability, when employing, when determining the price of public health services) than an Italian hospital.

Portugal began reforms of the public sector accounting system at the beginning of the 1990s (as a segment of a broader set of New Public Management initiatives). Local Portuguese governments have introduced decentralized organizational structures with a focus on financial management practices that require the implementation of cost accounting, so the shift to the new accounting system was in order (Carvalho, Gomes and Fernandes, 2012: 308). The adoption of accrual-based financial accounting in Australia, New Zealand and United Kingdom has also triggered the increased use of cost accounting (IFAC, 2000). The size of governmental entities also seems to be the driver of cost accounting implementation. Mohr (2015: 101) stated that the size of U.S. cities (in terms of population) determines the use of cost accounting in these municipalities “because larger-population cities tend to have more roads, more sewers, more parks and more of everything for which it is useful for leaders to have accurate costs”. Thus, if a public sector entity provides more services and more overhead costs are incurred, the greater the likelihood that cost accounting will be needed and therefore implemented. On a national level, the adoption of accrual accounting seems to be the main prerequisite for cost accounting implementation.

Cost accounting is a dynamic system that should be continuously developed in order to fulfil its purpose (IFAC, 2000; Carvalho, Gomes and Fernandes, 2012; Dražić Lutilsky, Vašiček and Vašiček, 2012; Dražić Lutilsky and Dragija, 2012; Mohr, 2015; Bertoni, De Rosa and Dražić Lutilsky, 2017). The improvement of financial management in the public sector depends on the skills of the management and its capacity for the usage of financial and non-financial information. In public sector practice, this particularly applies to the usage of cost and management accounting as well as financial and non-financial indicators (Dražić Lutilsky and Dragija, 2012: 34). The use of financial data would be improved if data visualisation and dashboards were included in the accounting reports. These accounting reports for internal users should also contain internal checks that provide red flags for closer scrutiny. Improved data-sharing across accounting and performance management systems could enable data analytics to provide more frequent reporting and more intuitive data analysis to support decision-makers.

Recent studies on cost accounting in the public sector (Jackson and Lapsley, 2003; Baird, 2007; Järvinen, 2009; Dražić Lutilsky, Vašiček and Vašiček, 2012; Dražić Lutilsky and Dragija, 2012; Bertoni, De Rosa and Dražić Lutilsky, 2017; Mohr, Raudla and Douglas, 2018; Tuccillo and Agliata, 2018; Labrador and Olmo, 2019; Priyatmo and Akbar, 2019) strongly recommend the adoption of activity-based costing (ABC). This contemporary accounting method could provide relevant information: for instance, to optimize service processes, to decide whether to outsource some services or whether to introduce new services and close some departments. The most



evident advantage of the application of the ABC method is that it provides more realistic cost estimates through precise cost identification and cost allocation (Bertoni, De Rosa and Dražić Lutilsky, 2017: 123). Therefore, public sector managers and politicians as decision-makers should benefit from public cost accounting development as long as they are willing to use the wide scope of the provided accounting information. On the other hand, the implementation of ABC entails some pre-conditions (like knowledge, skills and availability of data). It is difficult to apply the ABC method to areas other than the most straightforward service delivery of the public sector entity. Thus, ABC method should be used only in targeted functions where these pre-conditions are met; otherwise, it can give rise to a tremendous amount of investment with little return. It needs to be developed from a decision-maker (user) perspective rather than an accounting (supply) perspective, at least in the public sector. The increasing call for the inclusion of environmental, social and governance considerations in budgetary decision-making should eventually instigate a complete overhaul of existing ABC methodologies. Lau, Lonti and Schultz (2017) acknowledged that reliable cost accounting is the key to measuring productivity in the public sector. They also proposed three steps for the improvement of cost accounting in the public sector that begins by harmonizing accounting methods in order to ensure consistency in measuring costs. The next step is the design of a new public sector financial IT system that should not only be an accounting tool, but must also support productivity measurement. Finally, it is necessary to use “feedback/knowledge of public managers to understand which cost data are meaningful and useful to improve productivity in their specific area of work” (Lau, Lonti and Schultz, 2017: 193).

#### 4 HYPOTHESES

As already stated, accounting information is produced for both internal and external users. While financial accounting provides information for external users (that are outside of the entity) as well as for the internal users (who work within an organisation), cost accounting does it mainly for the decision-makers (as internal users). Management is the main internal user of accounting information because of the leadership role that requires facts and figures in order to make a decision. Decision-makers in the public sector are governing politicians and public managers. According to Flury and Schedler (2006: 233) politicians require full costing information, while public managers are more inclined to variable cost information.

Ouda and Klischewski (2019) pointed out that behavioural and cognitive aspects affect the use of accounting information. According to Guraini (2016: 500) the availability of accounting data does not always lead to its correct interpretation or proper use. Van Helden (2016) stated that budgets and interim accounting reports are not likely to be used by politicians unless they find them useful in debates on controversial projects or programmes. Previous studies (Ezzamel et al., 2005; Liguori, Sicilia and Steccolini, 2012; Guarini, 2016; Jorge, Jorge de Jesus and Nogueira, 2019) suggested that politicians lack the expertise required for using complex accounting information. Consequently, politicians underestimate the value of accounting information for the political activities. Politicians are accountable for

the definition of organisational mission and plans, and, on the other hand, public managers (as administrators) are held responsible for the execution of those plans and are driven by the search for effectiveness and efficiency (Liguori, Sicilia and Steccolini, 2012). Therefore, it is reasonable to assume that:

H<sub>1</sub>: There is a difference in the usage level of accounting information in decision-making and management between public managers and representatives of local and regional governments.

The difference between the use and the usefulness of accounting information is already distinguished in the accounting literature. Van Helden (2016) argued that information usefulness is supposed to be driven by user needs. Sometimes accountants provide accounting information (which is normally considered to be useful information to its users) that is not useful for the matter in hand or the task to be performed. Therefore, it is the use that determines the usefulness of accounting information. According to Askim (2007) performance information is the second best source of information for decision-making to set issues on the political agenda. He found out that performance information gives politicians control over the municipality's implementation of political decisions and a good idea about how well the municipality meets the needs of the local population. Public service performance can be improved by using performance information because it contributes to accountability and provides information to rationalize decision-making (George et al., 2020: 15). Planning and control are common examples of accounting information usefulness (Van Helden, 2016) which are scarcely examined in public sector so it can be assumed that:

H<sub>2</sub>: The level of the use of accounting information in decision-making affects the cost planning, cost control and cost analysis as well as cost accounting application even for pricing purposes.

## 5 METHODOLOGY AND RESULTS

The empirical research is based on an online survey. To collect data, a structured questionnaire was designed according to the conceptual framework and empirical results of previous studies (Van Helden, 2016; Liguori, Sicilia and Steccolini, 2012; Guarini, 2016; Jorge, Jorge de Jesus and Nogueira, 2019; Jovanović, Dražić Lutilsky and Vašiček, 2019) regarding the use of accounting information in public sector management. The questionnaire consists of closed questions measured by 5-point Likert-type scale (where 1 represents "absolutely disagree" and 5 is for "absolutely agree" with the offered statement). The link to the questionnaire was sent to the e-mail addresses of 500 public sector accountants in Croatia who work for local and regional governments as well as related public entities (like schools, hospitals, museums, etc.) that are known as budgetary users. During June and July 2020, 178 respondents filled out the questionnaire so the response rate was 35.6%. The collected data were analysed using the IBM – SPSS 23 programme. Univariate statistics were used to validate the hypotheses.

Public sector accounting system in Croatia is unified and all public entities apply the modified accrual-basis system. This means that revenues are recorded on a cash

basis (according to the inflows of cash and cash equivalents) and the expenses are recorded at the moment when the transaction or business event appears (regardless of the moment of payment). Therefore, public sector entities in Croatia do not account for the costs of depreciation and amortisation of assets (Dražić Lutilsky, Vašiček and Vašiček, 2012; Jovanović, Dražić Lutilsky and Vašiček, 2019).

Instead of asking decision-makers, in order to assess their use of accounting information, this survey was only addressed to public sector accountants although accountants can also have some implicit bias (e.g. an inflated view of the importance of their work; a supply-driven perspective does not indicate whether or not it is actually used; and lack of exposure to actual decision-making instances to assess the extent to which financial data is used). When asked about the use of accounting information by their legal representative (major, municipal major, prefect or other public manager) for decision-making and management purposes, accountants acknowledged the high level of usage: 49.4% of accountants evaluated the use of accounting information by their superiors (politicians and public managers) with the highest mark (5) and 27% with the next highest mark (4), while 17.4% assessed it as 3, and the rest (6.2%) acknowledged a low level of the usage.

Descriptive statistics on usefulness of cost accounting information and the level of cost accounting implementation are presented in table 1.

**TABLE 1**

*Descriptive statistics on public sector cost accounting and its usefulness*

	N	Minimum	Maximum	Mean	Std. deviation
Pricing	178	1	5	3.37	1.274
Cost planning	178	1	5	4.34	0.883
Cost control	178	1	5	4.28	0.927
Cost analysis	178	1	5	4.19	0.988
Interim reports	178	1	5	4.25	1.093
Cost accounting (overall)	178	1	5	4.22	0.964
Valid N (listwise)	178				

*Source: Author's calculation.*

Since accountants are providers of accounting information, they are also a relevant party to assess the usefulness of this information. According to the empirical results (table 1) cost accounting information is the most useful for cost planning (mean value is 4.34). This finding was expected since budgeting is traditionally the fundamental role of public finance. Cost control is also highly estimated (mean value is 4.28). Cost analysis is often performed in many Croatian public sector entities (mean value is 4.19) while the use of accounting information for pricing purposes is evaluated slightly lower (mean value is 3.37).

The results (table 1) also indicate that many public sector entities in Croatia provide additional (interim) accounting reports, besides mandatory financial statements, for

the internal users only (mean value is 4.25). Accountants acknowledged that the level of usage of cost accounting system is rather high (mean value is 4.22).

Since public managers (also known in the literature as public administrators), who are the head of the public sector entities classified as budgetary users, use accounting information for different purposes than governing politicians, it was assumed that there is the difference in the usage level of accounting information for the separate purposes of decision-making and management. This hypothesis is verified using the Mann-Whitney U-test. This non-parametric test was used in order to compare differences between two independent groups: a public organisation with public managers in charge and organisations run by representatives of local and regional governments.

**TABLE 2**

*The rank differences of the accounting information use*

	Type of public sector entity	N	Mean rank	Sum of ranks
Representative's use of accounting information	1 (local and regional government)	28	70.2	1,965.5
	2 (budgetary users)	150	93.1	13,965.5
	Total	178		

Source: Author's calculation.

**TABLE 3**

*Results of the Mann-Whitney U-test*

	Representative's use of accounting information
Mann-Whitney U	1,559.500
Wilcoxon W	1,965.500
Z	-2.336
Asymp. Sig. (2-tailed)	0.019

Grouping variable: Type of public sector entity.

Source: Author's calculation.

Since the legal representatives of budgetary users (public managers) are pressured to deliver the planned activities within the budget it was expected that they would use accounting information in decision-making and management more often than the representatives of local and regional governments (politicians). The findings (tables 2 and 3) indicate that there is a difference in ranks of the use of accounting information between politicians and public managers (p-value is 0.019). This result is in line with prior theoretical assumptions by Flury and Schedler (2006) and Liguori, Sicilia and Steccolini (2012) who presumed that in their pursuit for efficiency and effectiveness public managers would be using accounting information more than governing politicians (although in a broader sense they are also public managers).

The second hypothesis was statistically tested using the Kruskal Wallis test (tables 4 and 5). This rank-based nonparametric test was performed in order to determine

if there are statistically significant differences between a representative's use of accounting information (as an independent variable) on the ordinal dependent variables (various aspects of accounting information usefulness).

**TABLE 4**

*The rank differences of the accounting information usefulness and level of cost accounting implementation*

	<b>Representative's use of accounting information</b>	<b>N</b>	<b>Mean rank</b>
Pricing	1	5	26.10
	2	6	48.00
	3	31	64.79
	4	48	87.76
	5	88	105.59
	Total	178	
Cost planning	1	5	81.60
	2	6	15.00
	3	31	70.23
	4	48	66.24
	5	88	114.51
	Total	178	
Cost control	1	5	65.20
	2	6	17.33
	3	31	73.08
	4	48	75.18
	5	88	109.40
	Total	178	
Cost analysis	1	5	94.60
	2	6	14.83
	3	31	59.19
	4	48	75.41
	5	88	112.66
	Total	178	
Interim reports	1	5	63.60
	2	6	29.58
	3	31	80.74
	4	48	80.54
	5	88	103.03
	Total	178	
Cost accounting (overall)	1	5	67.00
	2	6	15.83
	3	31	64.63
	4	48	72.48
	5	88	113.85
	Total	178	

*Source: Author's calculation.*

TABLE 5

Results of the Kruskal Wallis test

	Pricing	Cost planning	Cost control	Cost analysis	Interim reports	Cost accounting (overall)
Chi-Square	28.740	58.973	39.760	52.374	22.536	53.586
df	4	4	4	4	4	4
Asymp. Sig.	0.000	0.000	0.000	0.000	0.000	0.000

Grouping variable: Representative's use of accounting information.

Source: Author's calculation.

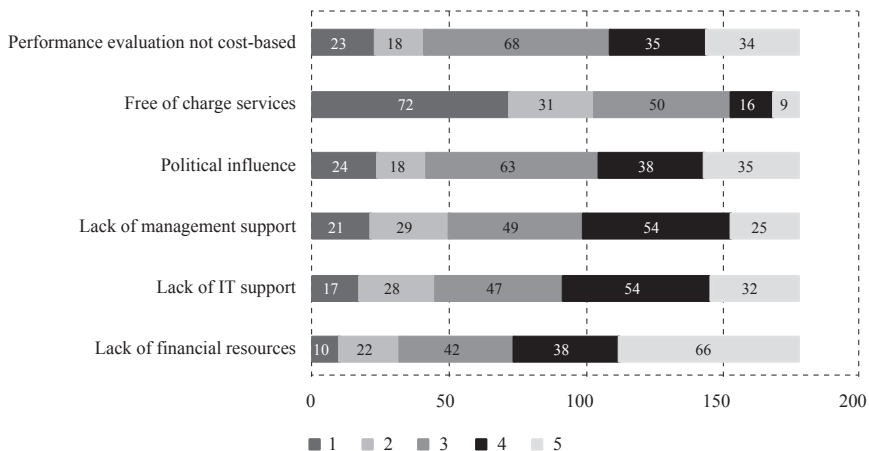
Findings (tables 4 and 5) indicate that the usage level of accounting information for management and decision-making purposes of the legal representatives of public sector entities determines its usefulness (p-value in all cases is 0.000). The level of the use of cost accounting information affects price setting decisions, which is consistent with a previous study (Flury and Schedler, 2006; Bertoni, De Rosa and Dražić Lutilsky, 2017). As expected, the usage level of cost accounting information is related to the level of cost planning and cost control, which is similar to previous research results (Van Helden, 2016; Bertoni, De Rosa and Dražić Lutilsky, 2017) as well as cost analysis. Furthermore, the usage level of cost accounting information is related to the level of discretionary interim accounting reporting. These empirical results indicate that the level of implementation of public sector cost accounting is determined by the use of accounting information.

The implementation level of public sector cost accounting in Croatia from the accountants' perspective is rather high (mean value is 4.22) according to results presented in table 1. Nevertheless, cost accounting is a dynamic category, constantly developing. As already stated, the use of the ABC method is the next step of public sector cost accounting evolution. Only 14 out of 178 (7.87%) respondents answered that they have implemented the ABC method. The reason for this finding might be the fact that further development of public sector cost accounting faces several obstacles (graph 1).

The obstacles for the further development of cost accounting are not perceived as serious limitations. On the scale of 1-5 accountants replied that the main constraint of public sector cost accounting development is the lack of financial resources (mean value is 3.72). The lack of IT support (mean value is 3.31), and political influence (mean value is 3.24) represent moderate constraints. The view that performance evaluation is not cost-based is also an obstacle, although minor, in cost accounting development (mean value is 3.22). The lack of support from public managers and governing politicians, who act as management, is slightly perceived (mean value is 3.19). Most of the accountants (58%) did not agree that the public sector does not need cost accounting due to the free of charge services it provides (mean value is 2.21). A previous similar study (Jovanović, Dražić Lutilsky and Vašiček, 2019: 3765) showed that IT support is the main constraint of cost accounting implementation in public hospitals followed by the lack of financial resources that is similar to these results.

## GRAPH 1

## Development obstacles of public sector cost accounting



Source: Author's calculation.

## 6 CONCLUDING REMARKS

The paper contributes to the rather scarce literature on public sector cost accounting and its usefulness. The empirical analysis was conducted on a data sample drawn from public entities in Croatia. The primary data were obtained through a questionnaire addressed to public sector accountants in order to determine the level of the use (by their management) and usefulness of accounting information.

Financial accounting in the public sector worldwide has undergone significant changes in the new millennium. The transition from cash-based to accrual-based accounting is not completed in many countries but it is expected soon, since the EU is preparing EPSAS for all member states. Croatian public sector entities are obliged to apply modified accrual accounting and although it has several constraints regarding cost recognition (comparing to the full accrual accounting), the level of the current development stage of cost accounting system is high. Accountants in the Croatian public sector provide to their management (legal representatives who are in this study referred as governing politicians and public managers) interim reports that are optional according to current regulations. The empirical results regarding the interim accounting reports shed light on the usage of accounting information by politicians in local and regional governments and public managers. The interim reports are provided on request from governing politicians and public managers indicating the high level of understanding and use of accounting information in Croatia. Accountants who are employed in the public sector estimated the current level of overall implementation of cost accounting as very good although only 7.87% use the ABC method. The obstacles for further development of public sector cost accounting are not strongly perceived. The respondents recognised the lack of financial means as the greatest constraint of cost accounting development followed by the lack of IT support. Most of them did not agree that public sector cost accounting is

unnecessary since public services are free of charge. Moreover, cost information is essential when setting prices in the public sector.

This study provides an understanding of accounting information use in the public sector, highlighting the usage difference between governing politicians and other public managers. The findings indicate that public managers (legal representatives of entities classified as budgetary users) are better users of accounting information than governing politicians (prefects, mayors and municipal mayors). The reason for this inference may be that public managers are facing more pressure to obtain efficacy and effectiveness so they rely more on accounting information to make rational decisions. Both of these internal users of accounting information rely on this kind of data and figures in decision-making process. The usage level of cost accounting information in decision-making affects cost planning, cost control, cost analysis, preparation of interim reports as well as overall cost accounting system. Therefore, the use of accounting information determines the level of cost accounting implementation in public sector.

A limitation of this study is related to the fact that it did not include the assessment of accounting knowledge of the governing politicians and public managers who use information provided by accountants. Therefore, the future research should examine the understanding of accounting terminology since most public managers and politicians have different educational backgrounds unlike managers in the private sector because it is expected that they must have great financial skills (due to an excellent accounting knowledge) in order to succeed. In addition, an in-depth analysis should include the quality, relevance, presentation and the user demand of financial data in public sector as explanatory variables. Furthermore, forms and processes for data reporting that would improve usability and relevance should be recommended. The follow-up survey should explore the dialogue between public sector accountants and decision-makers as well as perceptions of data and reporting quality, relevance and usefulness as drivers of the actual use of accounting data.

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SURVEY ITEMS<sup>1</sup>:

1. I work as an accountant in:
  - a. Local or regional government (town, city, county)
  - b. Public institution (e.g. school, hospital, museum, theatre)
2. Besides mandatory financial statements, we also prepare additional interim reports.
3. Cost accounting in our organisation is well applied and useful.
4. Do you apply activity based costing (ABC)?
5. Legal representative relies on accounting information in decision-making process.
6. Price setting of public service in our organisation is based on accounting information.
7. We carefully plan our costs.
8. We have good cost control.
9. We perform cost analysis in detail.
10. Please assess the following constraints of the further cost accounting development:
  - a. Performance evaluation is not cost-based.
  - b. Public services are free of charge so there is no need for cost accounting.
  - c. Political influence does not support cost accounting.
  - d. There is a lack of management support.
  - e. There is a lack of IT support.
  - f. There is a lack of financial resources.

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<sup>1</sup> Note: Most of the survey items are closed questions (statements) measured by 5-point Likert-type scale (except questions no. 1 and 4).