

Initial measurement of assets produced in Bulgarian companies – current state and ways for improvement

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Abstract: The initial evaluation of the production is one of the most complex tasks that accounting specialists face in their practice. The quality of the accounting information provided to the various internal and external users depends to a great extent on the way in which this task is resolved. In this article, using the results of an undertaken research, the practice of leading Bulgarian companies will be analyzed with regard to the costing of their production. The main purpose is to make recommendations for optimizing the process of costing in Bulgarian companies and to increase the quality of the accounting information produced as a result of this process.

Key words: Costing, Initial measurement of production, Costing in Bulgaria, Costing methods applied by Bulgarian companies

1. Introduction

The initial measurement of the production is among the most complex issues the accounting specialists, scholars and regulators face in their practice. It is a problem that will never lose its topicality and is a dynamic subject both in theoretical and practical aspect. The information about the cost of production must answer to the highest demands of timeliness, thoroughness and quality.

The initial measurement of assets produced in the company is made on their cost price. IAS 2 *Inventories* points out that “A primary issue in accounting for inventories is the amount of cost to be recognized as an asset and carried forward until the related revenues are recognized. (IAS 2 *Inventories*, §1). The major part of the above mentioned standard and his parallel NAS 2 *Accounting for inventories* is dedicated to provide ways and guidance by which this primary issue to be resolved.

Measuring the cost of production has always been a controversial topic which incites the interest of many national and foreign accounting scholars. There are plenty of researches dedicated on various costing methods and techniques and the possibilities for application of those methods in the practice of manufacturing, agricultural and other producing companies (Kaplan, R., Cooper R. 1997); (Cooper, R., Slagmulder, R. 1997); (Tuncel, G. et al., 2005); (Mr. Shaban E. A. Salem, Dr. Shabana Mazhar, 2014).

The majority of researches are limited to field or case studies of practices applied by specific company or a small group of companies. Far fewer studies cover more extended

group of companies and can be used for conclusions about application of various costing methods and techniques on a wider level (business sector, national level etc.)

The **main research hypothesis** in this article is that there are possible ways to improve the quality of the accounting information regarding the cost of assets produced in Bulgarian companies, and by using these possibilities the companies may improve the decision making process and thus their competitiveness.

This article is dedicated to analyze the results of a survey undertaken among the leading Bulgarian manufacturing and agricultural enterprises. The survey reveals the practices used by these companies in the process of costing their production. The further analysis points out the weaknesses in these processes and reveals the possibilities for improvement.

2. Methodology

The survey aims to provide the necessary data for further analysis of the practice, applied by some Bulgarian companies when they measure the cost of their production. The goal is to collect enough raw data to conclude how the companies resolve the above mentioned issues regarding the initial measurement of assets produced by them.

Deduction, induction, correlation and comparative analysis are among the scientific methods used through the research process. Others are statistical methods, specifically designed queries, modeling, etc.

Questionnaires were developed and sent to leading companies which operate in the manufacturing and agricultural sector. The questionnaires were designed to be used for comparison of practices applied in the two sectors, to reflect the specifics in them, and to point out any ways for improvement of the costing process in those companies.

The data received from respondents is processed and analyzed in various sections and by using the induction method many conclusions were made about the state of the researched issues in Bulgarian practice.

Scope of the research: The survey was undertaken among one hundred manufacturing and one hundred agricultural companies. The criteria for a company to fall in to selection were as follows:

a) for manufacturing companies:

- their main economical activity as stated in the Annual activity report submitted for 2014 to the National Statistical Institute to be in the sector “C - Processing industry”;

- to be among the one hundred companies from the sector who announced the highest sales revenue in section “61180” of their Revenue and Expense report, part of the Annual activity report;

b) for agricultural companies:

- their main economical activity, as stated in the Annual activity report submitted for 2014 to the National Statistical Institute to be in the sector “A - Agriculture”

- to be among the one hundred companies from the sector who announced the highest sales revenue in section “61110” of their Revenue and Expense report, part of their Annual activity report.

The reasons for choosing these criteria are as follows:

- these are the leading companies which realized the biggest value of production in the sectors they operate in;

- not following regulatory requirements about costing of production, omissions and inaccuracies in the process of measuring the self-produced assets in these companies would have the biggest negative influence over key parts of their financial reports. Thus they would reduce vastly the quality of information received by the various users of information.
- they will benefit mostly from the implementation of the newest and more effective ways to improve the process of initial measurement of self-produced assets.

Information about the companies, which met above-mentioned criteria, was received from the National statistical institute (NSI). After formal claim for statistical information, NSI gave the names and UIC of the companies (see Minev M., 2016, Appendix 1 and 2)

Subject of the research: Practices applied for initial and subsequent measurement of assets produced in the companies.

Aim of the research: Analysis and evaluation of the applied practices for initial and subsequent measurement of assets produced in the leading manufacturing and agricultural companies in Bulgaria.

Research limitations: Survey forms don't include any questions which require disclosure of exact numbers, specific methods or any other information that could be characterized as confidential for the companies.

Preparation of the survey forms, their filling by the respondents and the subsequent gathering and aggregation of the responses were made using the functionalities of the online platform – "Lime survey". The following processing of the data, the verification for statistical significance of responses and conclusions was made using the software product SPSS.

3. Summary of the results. Conclusions and recommendations

Responses were received from 25% of the manufacturing companies and 22% of the agricultural ones, or 24% in total of all the companies included in the focus group. The survey lists, aggregated data and the one-dimensional distributions of the responses received from the respondents could be found in the below cited literature (see Minev, M., 2016, Appendixes №4, 5, 6 and 7)

The test run with SPSS software showed statistical significance of the responses; therefore the conclusions made on their basis could be referred to the whole scope of the research.

Further on in the text the most significant results from the research will be presented alongside with the main conclusions and recommendations made by the author.

The majority of manufacturing entities (80%) responded positively on the question if they have distinct managerial accountant(s). This percentage is relatively lower among the agricultural companies - 63.64%. In total 72.34% of all respondents have distinct managerial accountants. This result is comparable with the findings of other authors – 70.35% (see Atanasova An., 2015, p. 52). This high percentage comes to show the extremely serious attitude and significance which the management of researched companies have towards the matter of costing and measurement of production.

The research data shows that big share (72%) of the manufacturing companies have integrated Enterprise Resource Planning (ERP) systems with separate modules for expenses

analysis and costing of production. In comparison this share for agricultural entities is only 4.55%.

This significant difference urged us to do statistical tests, using SPSS platform. The results of these tests could be seen in tables №1 and №2 below.

Table №1 Two-dimensional distribution of variables „Integrated ERP system“ and „Company sector“

		Do your company have integrated ERP (Enterprise Resource Planning) system?			Sum	
		Yes	No, but we plan to do that in the next 3 years	No, and we don't intend to do that in the next 3 years		
By Company sector	Manufacturing	Count	18	1	6	25
		% within Survey	72,0%	4,0%	24,0%	100,0%
		% within Do your company have integrated ERP (Enterprise Resource Planning) system?	94,7%	8,3%	37,5%	53,2%
		% from total of	38,3%	2,1%	12,8%	53,2%
	Agriculture	Count	1	11	10	22
		% within Survey	4,5%	50,0%	45,5%	100,0%
		% within Do your company have integrated ERP (Enterprise Resource Planning) system?	5,3%	91,7%	62,5%	46,8%
		% from total of	2,1%	23,4%	21,3%	46,8%
Total		Count	19	12	16	47
		% within Survey	40,4%	25,5%	34,0%	100,0%
		% within Do your company have integrated ERP (Enterprise Resource Planning) system?	100,0%	100,0%	100,0%	100,0%
		% from total of	40,4%	25,5%	34,0%	100,0%

Table №2 Connection between the variables “Integrated ERP system, and “Company sector” – hypothesis test (χ^2 - test)

	Value	df	Asymp.Sig.(2-sided)
Pearson Chi-Square	24,452 ^a	2	,000
Likelihood Ratio	29,075	2	,000
Linear-by-Linear Association	12,224	1	,000
N of Valid Cases	47		
a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 5,62.			

It can be concluded on the basis of the data shown in the above tables that the null hypothesis – *there is no connection between the sector in which the company operates and the integration of ERP system in the company* – is rejected. Thus the alternative hypothesis is

accepted – *there is a connection between the company sector and the integration of ERP system.* Moreover this connection is one of a very strong correlation.

As a result of the above data and tests it could be stated that *the ERP systems and their advantages for optimizing and better controlling the processes of expenses analysis and measuring the cost of production are far better used by the leading manufacturing companies than they are by the agricultural ones.*

None of the researched companies had ever been sanctioned by the government authorities as a result of omissions and/or mistakes made during the costing process. At the same time 36.84% of manufacturing and 40.91% of the agricultural companies declare that they seriously question the quality of their own information about the cost of their production. *This unambiguously states that there is a vast field for improvement of the government control procedures related to the cost of production.*

Nearly half of the researched manufacturing entities (44%) state that they do not test their production's net realizable value by the end of the year. *This at first is a violation of the requirements of the IAS 2 Inventories and its corresponding one AS 2 Accounting for inventories. Moreover it is a non-observance to one of the generally accepted accounting principles – conservatism, not only in the researched companies but most likely in the majority of manufacturing companies in Bulgaria.*

All respondents have replied that they apply the straight-line depreciation method both for financial and managerial accounting purposes. Having in mind that this method is the only one that is acceptable for taxpaying purposes (see part Ten of The Corporate Tax Law) it could be assumed that companies use this method to ease the clerical work which results from having two separate depreciation plans in their financial accounting systems. If we accept the application of the straight-line method for financial accounting purposes with some concerns, we state that this method should have very limited (if any) use in the managerial accounting. Surely the financial managers of the entities should consider the use of more complex and flexible ways to include the depreciation costs in the cost of the production. *Given the fact that depreciation costs represent vast share of the total cost of the production (between 20% and 40% of all costs for researched entities) the application of methods which better represent the real depreciations of long-term assets during the production process is one of the key tools to improve the quality of the initial measurement of production.*

It could be gladly acknowledged that the methodology for measuring the normal capacity of the production facilities, suggested by the author (Minev, 2015), received extremely positive feedback from the researched manufacturing entities. 47.37% of them answered that the methodology has some useful suggestions, 52.63% say that it is all-together useful. Moreover 89.47% of the respondents state that they will apply it, after making some alterations, when they measure the normal capacity of their production facilities.

It is interesting that 72% of manufacturing, 77.27% of agricultural companies or 74.47% from all respondents answered negatively to the question *if they consider the Specific identification method to be the most reliable and accurate method for transferring the cost of materials in the cost of production.* Despite the fact that this method is recommended by the applied accounting standards it has a very little application in researched companies. On this basis it could be stated that the wider application of this method will improve the quality of information about the cost of self-produced assets.

From researcher’s point of view the answers to the question for the most often applied costing methods are interesting. The research data shows that 54.17% of manufacturing and 50% of agricultural companies use the direct costing method to measure the cost of their production. At the same time from the answers of the respondents we understand that in the cost of their production various types and amount of indirect expenses are included. This contradiction, in combination with the specifics of the production process in researched sectors brings to mind the conclusion that it is reasonable to assume the lack of understanding in some of the respondents to the characteristics of the direct costing method. Similar conclusion is made by other authors as well. (see Atanasova An., 2015, 65-66)

The outstanding dominance of one of the methods for transferring the cost of materials in the cost of production over the others makes very strong impression. The results of the research show the following data about the applied methods for the cost of materials appraisal in the focus group companies.

Table № 3 Methods for transferring the cost of materials in the cost of production

Applied method	Manufacturing		Agriculture	
	Count	%	Count	%
Weighted average	64	64.00%	64	64.00%
First-in, first-out	2	2.00%	5	5.00%
Specific identification method	3	3.00%	2	2.00%
No data available for the applied method	31	31.00%	29	29.00%
Total	100	100.00%	100	100.00%

If we exclude the companies who haven’t disclosed the information about the applied method we will receive even higher dominance of companies which apply the weighted average method respectively 92.75% from the manufacturing and 90.14% of agricultural ones. *Given the relatively high share of material expenses in the total cost of production it could be stated that by using the modern technologies the companies may try to implement the Specific identification cost method to include more accurately the cost of materials in the total cost of their production.*

The most frequently applied basis for indirect expenses allocation and their inclusion in the cost of production among the surveyed agricultural companies is the amount of the acres sown (47.62% of the respondents), second in line as a choice for allocation of expenses is on the basis of the direct costs (38.10%) and after that is the allocation by the amount of the direct labor costs (in 9.52% of the companies). The manufacturing companies are most likely to allocate the indirect expenses by the amount of the direct materials (48% of the surveyed entities), next in line is the direct expenses basis (20%). The leading Bulgarian manufacturers most rarely use the direct labor costs as allocation basis – only 8% of them. This results significantly differ from the findings of other authors (Horngren, C. T., Datar, S. M. and Foster G, 2000, p. 101) who show that the direct labor costs are the most frequently used allocation basis from the manufacturing companies in USA, Australia, Ireland, Japan and United Kingdom.

Survey shows that only 10.53% of manufacturing and 18.18% of the agricultural companies apply the principles of ABC costing technique to allocate the indirect costs in the total cost of their production. This low levels are comparable with the ones found by other authors as well (see Atanasova An., 2015, p. 65) It should be pointed out that the financial managers of 21.05% of manufacturing and 9.09% of agricultural companies replied that they are not familiar with those principles. This comes to show the need of even wider representation of this technique and its advantages in the publications of the leading scholars. It must be noted that the management of every one of the companies who use the ABC technique determines the effect of the method application as extremely positive. *It could be stated on this basis that there is a significant potential for improvement and much wider spread in the use of the ABC costing in the process of cost allocation in Bulgarian companies. This will most certainly lead to refinement of the information about the cost of their production.*

The standard costing system has relatively wider use among the researched entities. It is applied by 45.83% of manufacturing and 50% of agricultural companies. Again it should be noted that the management of 20.83% of manufacturers and 18.18% of agriculture companies declare their lack of awareness and knowledge about this method. Similarly to the ABC costing the vast majority of the companies who use the standard costing technique (94.44% of them) considered it to be very helpful and to have significantly positive effect over the quality of the costing process and the information this process provides. There is a several ways in which companies apply the method. By the survey data it becomes known that 23.52% of the companies keep track to the predetermined cost standard compliance automatically during the costing period, i.e. the accounting software (and or the ERP system) keeps track and automatically alerts for every extend to any predetermined cost (surcharge). 23.52% of the companies follow and the variations from costing standards automatically after the end of the costing period, and the majority of the companies (47.06%) track the standard compliance of costs manually (and cost element by cost element) after the end of the costing period.

Negative impression is made by the small share of companies which apply the principles of the target costing technique. This method is used by only 16.67% manufacturing and 18.18% from the agricultural entities. It must be pointed out that the management of 45.83% of manufacturing and 40.91% of the agricultural companies doesn't know about the advantages of this technique. It could be positively noted that nearly a quarter from all respondents intend to start using the Target costing technique in the next three years. The vast majority (89.47%) of companies that already use the technique evaluate the effect of its application over the costing information as extremely positive. *The target costing technique has proven its usefulness in numerous cases over the years. On this basis it could be stated that its wider usage in Bulgarian companies is highly recommended. The wider application of this technique will decrease the share of companies (32.00% manufacturing and 77.27% agricultural) who suffer losses as a result of starting unprofitable productions processes.*

4. Conclusion

The most important conclusions made as a result of the research could be summarized as follows:

- Vast majority of respondents (72.34%) have distinct managerial accountants. This high percentage comes to show the extremely serious attitude and significance which the management of researched companies have towards the matter of costing and measurement of production.

- None of the researched companies have ever been sanctioned by the government authorities as a result of omissions and/or mistakes made during the costing process. At the same time 36.84% of manufacturing and 40.91% of the agricultural companies declare that they seriously question the quality of their own information about the cost of their production. On this basis it could be stated that there are possibilities for improvement of the government's and the auditor's control over the quality of the information produced by the costing process.

- The research data shows relatively low levels of application of the innovative techniques for costing the production as ABC costing, Standard costing and Target costing. Meanwhile the majority (over 90.00%) of respondents who use those techniques assess their impact over the quality of the costing information and its reliability as extremely positive. Therefore the wider application of the above-mentioned techniques in the practice of Bulgarian companies will lead to improvement and rationalization of the costing processes and on this basis it is highly recommended.

The presented results and conclusions made on the basis of them during this research confirm the main research hypothesis, as stated above. There are many possibilities to improve the quality of the accounting information regarding the cost of assets produced in Bulgarian companies. This improvement could be achieved by much wider application of the innovative costing techniques as ABC, Standard and Target costing.

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