

The Relevance of Theoretical Concepts in Practice: A Study of Management Accounting Concepts in 130 Large Swedish Companies

Krister Bredmar^a

Abstract: Management concepts in general and management accounting in particular may be studied in three contexts: practical, textbook and research. This paper shows that the three contexts are connected and a common image of management accounting is presented. Drawing from twelve American management accounting textbooks and one research article (2003) that analysed research within management accounting; 24 questions were asked to 130 out of the 200 largest Swedish companies. Results indicate that the major focus of textbooks is calculation. This focus is missing in management accounting research, but interestingly companies do not put a high value on it. It is also possible to identify several relationships showing organizations that encourage employee's participation and commitment can attain a higher level of satisfaction and performance in relation to budget.

Keywords: Management accounting, Practice, Survey, Textbooks, Swedish companies

JEL Classification: M16, M40

1. Introduction

The subject *management* may be described and analysed from several different perspectives. Basically, it is a craft that naturally fits within an organization. The concept may also be understood as a curriculum subject where tomorrow's leaders are taught theories, subsequently, to be used in management work within an organization. Partly of the origins of this idea may be traced back to Luca Pacioli of medieval Italy. He compiled a description of local commercial techniques that even today is the foundation of modern accounting (Puxty, 1993). We continue to utilise such concepts as debit, credit, and double-entry bookkeeping. Yet another dimension or perspective on the management concepts is that new theories and knowledge develop around it and that it is the object of research. Unlike other studies, this paper investigates how these three areas can be described and which connections can be perceived between them. In other words, there is no contradiction between the theories and the practice. They are instead dependent on each other. This dependency is expressed by Macintosh (1994) in the following way.

"Theory is always there in practice, regardless of how implicit or commonsensical it may appear. Likewise, practice is always present in the theory, no matter how thinly disguised."

Theories become a translation or interpretation of a practical course of events, an ongoing process in an organization. Accounting can then be understood from its historical and social context (Hopwood, 1987; Tinker, 1991). The theory is limited by the variables selected and constitutes, in many cases, a simplification of a more

^a PhD., Linnaeus University, School of Business and Economics, Sweden, Krister.Bredmar@lnu.se

complex and multifaceted phenomenon. Similarly, those involved in management of an organization need a more fundamental and general understanding of what the work entails and that understanding can be gained from the theories and textbooks. Checkland and Holwell (1998) claim that theoretical ideas lead to practical ideas that, in turn, form the basis of new theoretical ideas. Within this learning process, research in the area attains a high level of importance. Different perspectives on the subject are described and analysed systematically leading to the development of new theories. They are then communicated via textbooks to those employees who constitute the subsequent generation working with the concept within organizations. In this process, a context is created similar to that drawn from in a conversation. This conversation can be identified in the texts being produced and also through the opinions and the interpretation expressed by those working on the concept (Czarniawska, 1998; Silverman, 1993). The conversation also generates the social reality through which the actor subsequently orientates himself (Berger & Luckmann, 1966). The actor, in this case, is the person who actively uses the concept. He will make use of the general conversation taking place within the theories, in general, and textbooks, in particular, relevant to his specific area of activity. This social construction of accounting is a fruitful way of examining how management accounting and control systems normally works in an organisation (Hopwood, 2009; Hopwood & Miller, 1994; Neimark & Tinker, 1986). As a result of the theoretical conversation expressed through the actor's actions, the specific context subsequently changes (Checkland & Holwell, 1998; Daft & Weick, 1984). Against this background it becomes interesting to study the extent to which such theoretical conversations are forwarded via written words, for example textbooks and research reports, are established in the practical contexts. It is of interest to describe through simplified compilations how various theoretical concepts are interconnected, displaying as they do the concepts' interdependency in a practical context. In order to define a manageable concept, the subject area of management accounting has been studied in large Swedish companies. The theoretical starting point is the American textbooks which largely form the basis of the training programmes for the people actively using the concept, and an article by Luft and Shields (2003) who describes, in a thoroughly researched manner, the research undertaken in the subject area. This paper goes on to analyse four subject areas that in different ways contribute to an understanding of how the connection can be described between practice in organizations and the theories in textbooks and research. The initial section describes specific subject areas considered to be of importance and central by those active in the organizations. The second part describes areas emphasized by authors. These are compared to opinions held by people active in the organizations. The third part analyses connections between five concepts that are theoretically central and that have been subjected to the opinions of those active in organizations. In the fourth part, the employee's role and various behaviourist-oriented perspectives are described. The paper ends with a conclusion summary.

2. The Theoretical Frame of Reference

The questions used in the survey were based on twelve textbooks on management account and an article that points to the development and scope of the research. The textbooks were written by Zimmerman (2009), Williamson (1996), Atkinson, Banker, Kaplan and Young (2001), Glynn, Murphy, Perrin and Abraham (2003), Horngren, Bhimani, Datar and Foster (2002), Wilson and Chua (1993), Proctor (2002), Garrison and Noreen (2000), Horngren, Sundem and Stratton (2002), Lere

(1991) and two books were written by Drury (2000, 2001). The questions addressed the areas prioritized by the authors and the research areas that have attracted most attention. The priorities made by the authors indicate the areas they consider central and the priority areas the research community has most commonly addressed in literature. These priorities will later be compared to the priorities made and opinions held by the representatives of the organizations. The twelve textbooks all share a common structure. Their approaches are similar and they all use the same pedagogical idea expressed, for instance, through illustrations and pictures. As a result the extent to which a concept is addressed and the number of chapters used to describe the concept can be used as a measure of the author's priority rating. If the author considers the concept important it is given greater scope in the book. Results indicate that there are six areas or concepts that are addressed to a greater extent by the authors. The areas are as follows: models of cost calculation; general discussions of management control; such as planning and control; budget work; discussions on decisions; connections with financial accounting and finally pricing and transfer prices. The twelve textbooks totalled 214 chapters addressing the relevant concepts. A total of 80 chapters, 37%, addressed allocation of costs, 31 chapters, or 14%, addressed management control, and budget was addressed in 21 chapters, 10%. Of the remaining concepts extensively addressed, 8% was on decision, 6% on financial accounting, and 6% on pricing and transfer prices. One can draw the conclusion that two major areas that constitute the foundation of the subject area is cost calculations, management control, and budgeting. All textbooks included chapters on budget whereas the concepts of cost calculation, management control and decisions were lacking in one textbook each. Pricing and transfer prices were lacking in four textbooks and financial accounting in seven textbooks.

In their article "Mapping management accounting: graphics and guidelines for theory-consistent empirical research", Luft and Shields (2003) summarized the type of research completed within the framework of management accounting. A total of 275 articles collected from six leading journals were analysed. Each article was categorized based on three questions: What is researched? What are the direction and shape of the explanatory links proposed? What is the level of analysis - individual, organizational sub-unit, organization or beyond organization? The result is then presented in 9 graphical illustrations called maps, whose primary aim is to show the cause-and-effect links or relations between concepts that have been indicated in the underlying articles. Using this approach the authors wanted to indicate which areas have been prioritized by researchers and the concepts that have been the object of study and attempted explanation. The first map addresses budget work at the individual level, based on 42 links and the second at the organizational and organizational sub-unit level based on 27 links. The third map demonstrates the connection between concepts concerning information for planning & control and it is based on 33 links. The fourth map is based on 16 links and puts forward how implementation of management accounting change has been described. Performance measurement and rewards is the starting point for the fifth map that is based on 30 links. The sixth map presents micro-processes traceable to contracts and control based on 33 links. Concepts concerning individual's assessments and decisions are described in the seventh map, which is based on 48 links. A smaller number of references, 13 links, form the basis of the eighth map that describes management accounting in an historical and social context. The last map is based on 18 links and describes processes of change in a financial and operational setting.

3. The Structure of the Paper

Against the background previously described, this paper primarily focuses on four areas. The first is the concepts and areas that the various representatives of the organizations prioritise and emphasize in their organizations. These areas are traceable to the areas emphasized by the textbooks and the purpose is to give a general description of what is valued by the organizations. The second area includes a comparison between the priorities made by textbook authors and companies respectively. The simple assumption or hypothesis that can be formulated within this area is that the companies either have or haven't pinpointed the same priorities as the textbooks. A further hypothesis or assumption is that researchers have emphasized areas within their research that have been prioritised by the companies. Within the third area a number of links are analysed with the aim to show that different variables and priorities affect each other. The starting point is that if you work within a given area, that is to in fact prioritise it, the result is that you think that other areas are also important. Five assumptions will be addressed: how to work with change management; how to make priorities concerning decisions and information; how to establish support for management accounting among the staff; how to carry out performance measurement, and how to work on the budget. The variables affected are the level of importance allocated to calculation, budget, pricing and performance measurement. Finally, the fourth area describes how companies view the role of the employee and behavioural perspectives in the organization. The purpose of this area is to describe how to establish support for management accounting.

4. Methodology

Using the areas prioritised by the textbook authors as a starting point, twelve questions were formulated. The areas that the researchers in the subject area had prioritised, twelve additional questions were formulated. The questions can be seen in Appendix 1. The questions were constructed in the form of statements, to be responded to by the representative of the organization by rating a number on a Likert scale from 1 to 7. The number indicated the degree to which the respondent considered the statement to be applicable to his/her organization or how important an area was considered to be for the organization. From a survey performed by the business weekly magazine *Veckans Affärer* naming the 500 largest Swedish companies 200 largest were selected. The controller or alternatively CFO were contacted via telephone and asked to answer the questions. In cases where the routines differed throughout the organization the representative was asked to respond for as large a portion of the organization as possible. Those who were not contactable or who were not in a position to respond the first time were contacted on an additional three occasions. The telephone survey achieved responses from 130 companies while 70 out of 200 companies did not respond. Responses were continuously inputted into a Excel sheet and analysed in Excel and with a statistics program JMP.

5. Results

In the following section, the results are given based on the responses from the study. Results are structured in accordance with the assumptions presented in the previous chapter. Baseline data of the results are enclosed as appendixes and references to them are made throughout the text.

5.1. The Priorities of the Organizations

The general opinions of those within the organizations that work with the management accounting functions consider management accounting issues to be important. Within several of the central areas studied a considerable number of the respondents revealed that they were of the opinion that the organizations considered the area important or very important. The various areas presented in the following section and the baseline data are summarized in frequency tables in Appendix 2. A dominant proportion of the respondents, 72 indicated very important and 30 indicated important, considered that the organization was prioritising the general activities that relates to controlling and running of operations. There was also another substantial group, 93 respondents, who stated that pricing activities in the organization were also of great importance. Budget activities were prioritised by 76 respondents while calculation and performance measurement activities had nearly the same number of respondents 62 and 66 respectively. An area that was not prioritised by so many respondents was activities relating to transfer prices; only 24 respondents indicated that the activity was considered important or very important. The baseline data (see Appendix 3) shows that the responders did not indicate a positive attitude when it came to the question regarding to what extent the organizations were using management accounting data in: decision-making, accounting information was part of the general distribution of information, or the extent to which the management accounting function was being developed. Response values 4 and 5 were indicated by 56 respondents when it came to the question whether decisions were based on management accounting data, while 69 respondents indicated 6 or 7. This indicates that 56 respondents thought that decisions were neither very large nor very small based on management accounting data. A similar distribution of responses applied to the question to what extent 'the organizations were carrying out development of their management accounting', 55 responses indicated 4 or 5 and 73 indicated 6 or 7. Similar tendencies, but with an even more pronounced emphasis on the values in the middle, were the responses to the question to what extent 'the organizations included accounting information in the general distribution of information', 61 responded values 4 or 5 and 44 responded 6 or 7.

5.2. The Textbook Authors' and Researchers' Priorities in Comparison with those of the Organizations

The knowledge and concepts addressed in the textbooks indicate the general priorities of the textbook author. The number of chapters an author devotes to a certain concept can be seen as an expression of the priority an author attaches to that concept. In the textbooks on management accounting, that this study is based on, three overall areas are obviously prioritised by the authors. The areas given most space in the books are theories concerning various types of allocation of costs, 37% of the chapters address that area. Two areas that are not given the same amount of space but still hold considerable ground are general theories concerning control of operations with 14% of the chapters, and budget work with 10% of the chapters. The result is that the ranking between the concepts become apparent where the cost calculation ranks unmistakably first then followed by control of operations and budget work. The corresponding priorities related to the responses by the organizations looks slightly different. As many as 78% of the organization' respondents ranked 6 or 7 the controlling and running operation activity. Budget work followed next as being important

or very important, where 59% of the respondents had indicated 6 or 7. Lastly, the statement that work related to allocation of costs was important or very important in the organisation ranked at 6 or 7 by 49% of the respondents. Calculation followed by control of operations and budget are prioritised in the textbooks, but the organization's prioritize were control of operations followed by budget and finally calculation. Luft and Shield's (2003) article primarily describes five areas that have been studied more extensively. Different perspectives and angles of approaches have been the basis of the studies. The number of angles and links between the concepts and different explanations can be seen as expressions of how important the concept has been for researchers within the area. Thus, concepts that have been studied from many angles, with many links, have been prioritised by researchers within management accounting. Two areas have attracted equal amounts of attention. On a general level, control of operations has been studied in relation to 66 links both on the individual level and the organizational level. Slightly more attention has been given to budget activities with 69 links at the individual and the organizational level. Research related to decision-making ranks third with 48 links followed by change management with 34 links and performance measurement that has 30 links. The corresponding ranking amongst the companies is somewhat more difficult to carry out. Three of the five areas that are being prioritised by researchers can also be prioritised through the compilations of responses from the organizations. The area previously mentioned as a top priority area is activities relating to control of operations with 102 respondents who indicated 6 or 7. Budget activities rank the second highest priority with 76 respondents indicating 6 or 7, and in third place activities related to performance measurement with 66 respondents indicating 6 or 7. Following on the areas prioritised by the companies is general control of operations and budget work that were also prioritised by researchers in the management accounting area. It is worth noting that none of the maps explicitly show an in-depth research relating to calculation something given high priority in the textbooks.

5.3. Links between Priorities Made by the Organizations

There were several links between the questions that indicated how the respondents from the different organizations prioritised their work. In the following section links concerning the long-term change management, decisions, development work, performance measurement and budget work will be expanded on. With regard to the link between management accounting and strategic activities, approximately 40% of the respondents recognized that the link does exist to a considerable extent, where values 6 or 7 were the response given to that question, see Appendix 4. Among these respondents, one sub-group clearly expressed that activities relating to pricing was important or very important. Three areas were of equal importance performance measurement, budgeting and calculation, with approximately 30 respondents for each area. The least important area that was important, was the link between management accounting and strategic activities, and where activities were related to transfer prices, 15 respondents thought it was important or very important.

The extent to which work was done on developing management accounting, approximately 55% of the respondents stated that they were carrying out such efforts to a large extent or to a very large extent, see Appendix 5. A considerable number of these respondents, 54, stated that they considered activities related to pricing important or very important. The respondents who considered budgeting an important or very

important area to work with numbered 42; 40 indicated performance measurement, and 38 calculations. Transfer prices were less important with 11 respondents who considered it an important or very important area.

A considerable number of the respondents, approximately 55%, indicated that the organization to a large extent or to a very large extent changed the management accounting when the organization changed, see Appendix 6. Throughout such periods of change the area given top priority were prices and pricing activities, with 56 respondents considering it an important or very important area. Next on the priority list was budget work, 43 respondents, and activities relating to performance measurement, 42 respondents. Calculation work was considered important by 36 respondents and 13 respondents indicated that activities related to transfer prices was important. Regarding the extent to which the employees influenced and changed management accounting a lower ratio of the respondents, approximately 30%, considered it applicable to a large or very large extent. The areas considered important or very important to work on was indicated by equal numbers of respondents. Prices and pricing was indicated by 26 respondents; performance measurement by 24; budgeting by 22, and 20 respondents considered calculation work important or very important. Activities related to transfer prices were considered important or very important by 6 respondents. Considerable percentage divergence was found between the number of respondents who stated that a change of considerable extent or very considerable extent took place in the control of operations when the organization changed and the number who responded that change management was implemented by the employee's. Approximately 54% fewer respondents stated that activities related to the management accounting were influenced and changed continuously by the employee's as compared with the number of respondents who stated that the management accounting changed concurrently with the changes of the organization within the areas of prices and pricing and transfer prices. A response that work was important or very important was given by 49% fewer respondents within the area of budgeting, 44% fewer within calculation, and 43% fewer within performance measurement.

The second group that will be described in this section concerns decisions and information see Appendix 7 and 8. Amongst the 67 respondents who indicated that decisions were to a great extent or to a very great extent based on data from the financial accounting, virtually equal numbers of respondents indicated that performance measurement, 38 respondents, and budgeting, 37, respectively were important or very important. Asked whether accounting information was part of the general distribution of information, 33 respondents indicated that was the case to a great extent or to a very great extent. Among them, 26 respondents indicated that they considered budget work and performance measurement important or very important. 22 respondents considered calculation important or very important.

The third group shows that only under certain conditions did the 72 respondents who prioritised activities to develop management accounting consider it important or very important see Appendix 9. One of the most important prerequisites is to allow management accounting to change at the same pace as the change taking place in the organization; 44 of the 72 respondents were agreement or very much in agreement with their organization. Activities relating to calculation have been changed by 34 of the respondents over the last 15 years and 29 of the respondents allowed their employees to influence and change activities relating to management accounting.

The fourth group of links shows that there are links that can be ascertained with a statistical significance level of 5%, and of 1%. The significance level indicates that the assumption of no connection existing can be rejected. Results of the Spearman correlation test can be found in appendix 10. The first assumption that there exists a link is applicable to the claim that when an organization uses accounting information for planning and control there is a connection between management accounting and financial accounting. The probability that this link is by a chance result is less than 1%. If accounting information is used for planning and control there also exists a link to accounting information being included in the general distribution of information. At the 1% level a link can also be shown to exist between organizations using accounting information for planning and control and the fact that participation in the goal setting activities results in higher performance. A slightly lower probability, at the 5% level, applies to concerning the organization's performance. A link can be identified between participation in goal activities that leads to higher performance and a situation where accounting information is included in the general distribution of information. A link also exists between participation and whether or not the organization considers performance measurement important. This is also indicated through the link between employees' satisfaction being affected by performance in relation to budget, and how important or unimportant the organization considers performance measurement activities to be. There is also a link connecting the employee's potential satisfaction being affected by performance in relation to budget, with the potential for participation in goal setting activities that leads to higher attainment. This link is significant at the 1% level. Another link at the 5% level can be identified connecting performance when measured by means of accounting information, with employees satisfaction being affected by the performance in relation to budget.

The fifth groups of links concerning opinions about the budget are all significant at the 1 % level or lower, which means that the probability of this link being a chance result is less than 1%. Results statistically processed using Spearman's correlation test is found in Appendix 11. The processed results indicate that there is a link between how important the organization considers work on the budget to be, and (1) if a business unit's performance is affected by the budget work, (2) if the employees satisfaction is affected by the performance in relation to budget, and (3) if work on the budget is a method for the organization to create commitment. The results also indicate the existence of links connecting the possibility that budget activities may create commitment and (1) if a business unit's performance is affected by the budget work and (2) if the employee's satisfaction is affected by the performance in relation to budget. A link is also shown to exist connecting the possibility of a business unit's performance being affected by budget activities and if the employees' satisfaction is affected by the performance in relation to budget. Consequently, there are several different dimensions concerning links between the different questions in the survey. The organization's priorities and mode of approach to work with management accounting are affected by the basic assumptions made. The thoughts and ideas evoked concerning activities such as change management, decision, performance measurement, and budget work.

5.4. The Employees Role and Behavioural Perspective

The research done in the subject area, there is a strong interest concerning social and behaviourist perspectives. One expression of this interest is the fact that the research article (Luft & Shields, 2003), that was the basis of part of the questions, bases its analysis on an individual and an organizational level described above. An investigation into the extent to which there exists a link between the questions based on the employee and on behaviour indicates the existence of interesting links at the 1% level between these questions, see Appendix 12. There is a substantial link between work on the budget being a method for the organization to create commitment and a business unit's performance being highly affected by budget work. The link also covaries with the kind of participation in goal-setting activities that result in a higher performance. Similarly, there is a co-variance or a link to employees' satisfaction being affected by performance in relation to budget. These links indicate that if the organization prioritises activities concerning participation and commitment then it affects the way in which performance is perceived in the organization. These questions, in turn, covary with the extent to which individual assessments and decisions are based on accounting information and the extent to which management accounting is continuously influenced and changed by the employees. Thus, there exists a link between the extent to which activities concerning goal, budget, a continuous alteration of management accounting, and the extent to which the employees feel satisfied with the performance.

6. Conclusion

The general conclusion to be drawn from the overall descriptions of what the organization's representatives consider important is that they prioritise work relating to planning and control activities. Prices and pricing was also an area given high priority by several respondents. However, respondents indicated that work concerning the budget, performance measurement, and calculation was not as highly prioritised and work on transfer prices was not at all a priority. A considerably lower priority was also given to questions addressing the extent to which management accounting was an integral part of decisions and to information processing. Thus, activities concerning planning and control are important and prioritised but the traditional areas and applications are not as important and prioritised, whereas pricing activities are.

The priorities made by textbook authors indicate that the single most important area is theories concerning calculations. When these priorities are compared with the respondents' answers, calculation proves to rank third pointing to a lower priority. It also proves interesting to compare the textbooks' priorities with the survey in the research article, where none of the compilations made and links indicated, has a fundamental calculation perspective. Thus, textbooks afford calculations high priority whereas management accounting researchers chooses to allocate little space to it. Commonplace for both researchers and organizations are the high priority afforded to general activities concerning planning and control, and to issues related to budget. A possible interpretation concerning the lower priority given to calculation by the companies is that the result of the calculations is at the centre of interest, which forms the basis of prices and pricing, an area prioritised by the organizations. It does not explain, however, why calculation is not addressed to a greater extent within management accounting related research.

A considerable proportion of the respondents answered that they were working on the development of management accounting and that this was particularly the case when the organization was going through a developmental phase. In both cases, the prioritised area is pricing activities that may stand out as particular as it is not an area traditionally described as important within management accounting. Questions concerning the somewhat more classic concepts in management accounting such as budgeting, calculation, and to a certain extent performance measurement aroused an overall even interest. However, pricing activities were given the highest priority. Throughout the past few years an interest in balanced scorecards has increased significantly (Kaplan & Norton, 1992; Olve, Roy, & Wetter, 1999). Its area of operation is largely a matter of establishing management accounting and strategic work in the organization (Kaplan & Norton, 1996). The answers from the respondents imply that there is an interest in the strategic questions but that it is not as highly prioritised as the general change management.

Another interesting conclusion is that change and development of management accounting are prioritised, whereas employees influence on development is not. Another result indicated that there exists, at a high level of statistical significance, links between the respondent's answers concerning the effects of the management accounting will have or is intended to have on the organization. There was a clear link between the manner in which the organization used its accounting information and the connections that existed between management accounting and financial accounting. Results even implied that if accounting information was used for planning and control there was also a greater interest in spreading the information as part of the general distribution of information. If the organization allowed the employees to participate in goal-setting activities and if the accounting information was part of the general report efforts, it did result in higher performance, which was evaluated in comparison with the budget. Organizations that prioritised participation were also more prone to prioritise performance measurement. There was also a link between the manner in which budget was used in an organization and the manner in which that organization regarded commitment and participation, for example in connection with activities such as setting goals. Yet another link could be identified between that business unit's performance and its budget work.

This study shows that a correlation exists between the areas prioritised by textbook authors and those used in organizations activities. Priorities made in research within management accounting, however, differ from textbook priorities with regard to the extent that calculation has been selected as the object of activities, but an area that was given a lower priority by the organizations. Results also imply that there exists an interest to develop and change management accounting. However, this interest primarily concerns with ideas on prices and pricing, rather than a linking of development activities to establishing the strategic work in the operational activities and in management accounting.

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Appendix 1: Questionnaire

The various questions have been answered by using indications on a Likert scale rising from 1 to 7 expressing what the respondent and representative of the organization perceives to be the organization's attitude to the question. Questions 1 through 6 have been answered through the indication of a number from 1 to 7, where 1 denotes "unimportant" and 7 "very important". Questions 7 through 12 have been answered through the indication of a number, where 1 denotes "to a very small extent" and 7 denotes "to a very great extent". Questions 13 through 24 have been answered through the indication of a number between 1 and 7 where 1 denotes "not at all applicable to our organization" and 7 denotes "applicable to our organization to a very high degree".

Question 1	F5	How important are general activities relating to control and management of operations in your organization?
Question 2	F6	How important are activities relating to allocation of costs/calculation models in your organization?
Question 3	F7	How important are budget activities in your organization?
Question 4	F8	How important are pricing activities in your organization?
Question 5	F9	How important are transfer price activities in your organization?
Question 6	F10	How important are performance measurement activities in your organization?
Question 7	F11	To what extent are decisions in your organization based on management accounting data?
Question 8	F12	To what extent is there a link between management accounting and financial accounting in your organization?
Question 9	F13	To what extent is management accounting based on clearly defined strategic work?
Question 10	F14	To what extent is accounting information part of the general distribution of information?
Question 11	F15	To what extent are investment decisions based on calculations?
Question 12	F16	To what extent do you work towards developing management accounting in your organization?
Question 13	F17	The performance of a business unit is to a high degree affected by budget activities (participation, commitment)
Question 14	F18	Accounting information is used in planning and control activities
Question 15	F19	Over the last 15 years extensive change management relating to calculation models has been implemented, including such models as ABC calculations
Question 16	F20	Results or performance is measured using accounting information.
Question 17	F21	Managers at lower organizational levels easily acquire a faulty perception of what has been accomplished as a result of (asymmetrical) different information.

Question 18	F22	Participation in goal-setting activities results in the accomplishment of higher performance
Question 19	F23	Individual assessments and decisions are based on accounting information
Question 20	F24	Management accounting activities are continuously affected and altered by the employees in the organization
Question 21	F25	Changes in the organization are concurrent with changes in management accounting.
Question 22	F26	Employees satisfaction is affected by performance in relation to budget.
Question 23	F27	Financial accounting is separate from management accounting.
Question 24	F28	Budget activities are a means for creating commitment in the organization.

Appendix 2: Distributions

Q 1

Frequencies

Level	Count	Prob
1	2	0,01538
4	3	0,02308
5	23	0,17692
6	30	0,23077
7	72	0,55385
Total	130	1,00000

5 Levels

Q 2

Frequencies

Level	Count	Prob
1	1	0,00794
2	5	0,03968
3	9	0,07143
4	18	0,14286
5	31	0,24603
6	42	0,33333
7	20	0,15873
Total	126	1,00000

7 Levels

Q 3

Frequencies

Level	Count	Prob
1	4	0,03125
2	1	0,00781
3	11	0,08594
4	8	0,06250
5	28	0,21875
6	40	0,31250
7	36	0,28125
Total	128	1,00000

7 Levels

Q 4

Frequencies

Level	Count	Prob
1	1	0,00826
2	2	0,01653
3	2	0,01653
4	8	0,06612
5	15	0,12397
6	32	0,26446
7	61	0,50413
Total	121	1,00000

7 Levels

Q 5

Frequencies

Level	Count	Prob
1	8	0,06897
2	12	0,10345
3	15	0,12931
4	22	0,18966
5	35	0,30172
6	17	0,14655
7	7	0,06034
Total	116	1,00000

7 Levels

Q 6

Frequencies

Level	Count	Prob
1	2	0,01575
2	4	0,03150
3	8	0,06299
4	15	0,11811
5	32	0,25197
6	43	0,33858
7	23	0,18110
Total	127	1,00000

7 Levels

Appendix 3: Distributions

F11

Frequencies

Level	Count	Prob
3	4	0,03101
4	12	0,09302
5	44	0,34109
6	56	0,43411
7	13	0,10078
Total	129	1,00000

5 Levels

F14

Frequencies

Level	Count	Prob
1	1	0,00781
2	2	0,01563
3	20	0,15625
4	30	0,23438
5	31	0,24219
6	33	0,25781
7	11	0,08594
Total	128	1,00000

7 Levels

F16

Frequencies

Level	Count	Prob
3	2	0,01538
4	10	0,07692
5	45	0,34615
6	47	0,36154
7	26	0,20000
Total	130	1,00000

5 Levels

Appendix 4

Fit Y by X Group

Contingency Analysis of F13 By F6

Contingency Table

F6 By F13

Count	2	3	4	5	6	7	
1	0	0	0	0	0	1	1
2	0	0	0	2	3	0	5
3	0	1	1	4	2	1	9
4	1	0	5	5	4	3	18
5	0	0	2	16	7	5	30
6	2	6	4	13	13	4	42
7	0	0	3	3	7	7	20
	3	7	15	43	36	21	125

Contingency Analysis of F13 By F7

Contingency Table

F7 By F13

Count	2	3	4	5	6	7	
1	0	0	0	2	0	2	4
2	0	0	0	1	0	0	1
3	1	0	1	6	1	2	11
4	0	0	3	1	2	2	8
5	0	3	0	9	9	6	27
6	0	2	6	17	11	4	40
7	2	2	6	9	12	5	36
	3	7	16	45	35	21	127

Contingency Analysis of F13 By F8

Contingency Table

F8 By F13

Count	2	3	4	5	6	7	
1	0	0	1	0	0	0	1
2	0	0	0	0	2	0	2
3	0	1	0	0	1	0	2
4	1	0	1	4	2	0	8
5	0	1	4	5	4	1	15
6	2	1	3	11	10	5	32
7	0	4	6	22	15	13	60
	3	7	15	42	34	19	120

Contingency Analysis of F13 By F9

Contingency Table

F9 By F13

Count	2	3	4	5	6	7	
1	1	1	0	5	1	0	8
2	0	1	1	3	4	3	12
3	0	1	2	5	6	1	15
4	0	2	2	10	4	4	22
5	1	0	8	13	7	5	34
6	0	0	1	6	7	3	17
7	0	1	0	1	3	2	7
	2	6	14	43	32	18	115

Contingency Analysis of F13 By F10

Contingency Table

F10 By F13

Count	2	3	4	5	6	7	
1	0	0	0	1	0	1	2
2	0	0	0	1	3	0	4
3	1	0	2	3	2	0	8
4	1	2	3	4	4	1	15
5	1	0	6	14	10	1	32
6	0	4	3	15	10	10	42
7	0	1	1	7	7	7	23
	3	7	15	45	36	20	126

Appendix 5

Fit Y by X Group

Contingency Analysis of F16 By F6

Contingency Table

F6 By F16

Count	3	4	5	6	7	
1	0	1	0	0	0	1
2	1	0	1	2	1	5
3	0	0	3	4	2	9
4	1	1	6	6	4	18
5	0	4	14	10	3	31
6	0	3	13	18	8	42
7	0	1	7	6	6	20
	2	10	44	46	24	126

Contingency Analysis of F16 By F7

Contingency Table

F7 By F16

Count	3	4	5	6	7	
1	0	1	1	2	0	4
2	1	0	0	0	0	1
3	0	0	6	4	1	11
4	0	0	2	3	3	8
5	0	2	10	13	3	28
6	0	3	15	12	10	40
7	1	4	11	11	9	36
	2	10	45	45	26	128

Contingency Analysis of F16 By F8

Contingency Table

F8 By F16

Count	3	4	5	6	7	
1	0	0	1	0	0	1
2	0	0	1	1	0	2
3	0	0	0	1	1	2
4	0	2	2	2	2	8
5	0	1	6	4	4	15
6	1	1	9	16	5	32
7	0	4	24	19	14	61
	1	8	43	43	26	121

Contingency Analysis of F16 By F9

Contingency Table

F9 By F16

Count	3	4	5	6	7	
1	0	0	3	4	1	8
2	0	2	3	5	2	12
3	0	1	2	3	9	15
4	0	2	4	12	4	22
5	1	2	15	11	6	35
6	1	0	10	4	2	17
7	0	0	2	3	2	7
	2	7	39	42	26	116

Contingency Analysis of F16 By F10

Contingency Table

F10 By F16

Count	3	4	5	6	7	
1	0	1	0	1	0	2
2	0	0	2	2	0	4
3	0	1	4	2	1	8
4	0	2	5	5	3	15
5	1	3	12	12	4	32
6	0	3	15	14	11	43
7	1	0	7	10	5	23
	2	10	45	46	24	127

Appendix 6

Fit Y by X Group

Contingency Analysis of F24 By F6

Contingency Table

F6 By F24

Count	1	2	3	4	5	6	7	
1	1	0	0	0	0	0	0	1
2	0	0	0	1	3	1	0	5
3	0	0	2	2	3	1	1	9
4	1	3	4	2	1	5	2	18
5	0	3	1	7	12	6	2	31
6	0	3	6	8	13	9	2	41
7	0	1	3	3	4	6	3	20
	2	10	16	23	36	28	10	125

Contingency Analysis of F25 By F6

Contingency Table

F6 By F25

Count	1	2	3	4	5	6	7	
1	0	0	0	0	0	1	0	1
2	0	0	1	1	1	2	0	5
3	0	0	0	1	2	3	3	9
4	0	2	1	3	5	3	4	18
5	0	1	1	4	7	11	7	31
6	0	1	3	6	8	15	8	41
7	1	1	2	0	3	6	7	20
	1	5	8	15	26	41	29	125

Contingency Analysis of F24 By F7

Contingency Table

F7 By F24

Count	1	2	3	4	5	6	7	
1	1	0	0	1	2	0	0	4
2	0	0	0	0	0	1	0	1
3	0	1	3	0	3	3	1	11
4	0	0	1	0	2	3	2	8
5	0	2	4	4	11	5	2	28
6	0	4	3	9	10	9	5	40
7	1	3	6	9	9	8	0	36
	2	10	17	23	37	29	10	128

Contingency Analysis of F25 By F7

Contingency Table

F7 By F25

Count	1	2	3	4	5	6	7	
1	0	0	1	0	0	2	1	4
2	0	0	0	0	0	0	1	1
3	1	0	2	0	6	2	0	11
4	0	0	0	0	1	4	3	8
5	1	0	1	3	6	9	7	27
6	0	3	0	6	6	17	8	40
7	0	2	4	5	7	9	9	36
	2	5	8	14	26	43	29	127

Contingency Analysis of F24 By F8

Contingency Table

F8 By F24

Count	1	2	3	4	5	6	7	
1	0	0	0	0	1	0	0	1
2	0	0	0	0	1	1	0	2
3	0	0	0	0	1	1	0	2
4	0	0	2	3	2	1	0	8
5	0	3	2	3	4	2	1	15
6	1	1	5	6	9	9	1	32
7	0	5	8	11	20	9	7	60
	1	9	17	23	38	23	9	120

Contingency Analysis of F25 By F8

Contingency Table

F8 By F25

Count	1	2	3	4	5	6	7	
1	0	0	0	1	0	0	0	1
2	0	0	0	0	1	1	0	2
3	0	0	0	0	1	1	0	2
4	0	1	1	2	1	1	2	8
5	0	1	1	3	5	3	2	15
6	1	2	4	1	8	10	6	32
7	1	1	2	7	9	23	17	60
	2	5	8	14	25	39	27	120

Contingency Analysis of F24 By F9

Contingency Table

F9 By F24

Count	1	2	3	4	5	6	7	
1	1	0	1	1	0	4	1	8
2	0	1	4	0	3	3	1	12
3	0	0	2	5	4	2	2	15
4	0	2	0	4	6	7	3	22
5	0	3	7	6	12	5	2	35
6	0	2	3	3	7	2	0	17
7	0	0	0	0	2	3	1	6
	1	8	17	19	34	26	10	115

Contingency Analysis of F25 By F9

Contingency Table

F9 By F25

Count	1	2	3	4	5	6	7	
1	0	1	1	1	2	3	0	8
2	1	0	0	3	3	2	3	12
3	0	0	2	0	8	3	2	15
4	0	1	1	0	3	10	6	21
5	0	1	1	3	5	14	11	35
6	1	0	2	3	3	5	3	17
7	0	1	0	1	0	2	3	7
	2	4	7	11	24	39	28	115

Contingency Analysis of F24 By F10

Contingency Table

F10 By F24

Count	1	2	3	4	5	6	7	
1	1	0	0	0	0	1	0	2
2	0	1	0	0	1	2	0	4
3	0	0	3	0	3	2	0	8
4	1	1	2	5	2	4	0	15
5	0	4	6	5	11	3	2	31
6	0	2	3	7	15	10	6	43
7	0	2	3	4	6	6	2	23
	2	10	17	21	38	28	10	126

Contingency Analysis of F25 By F10

Contingency Table

F10 By F25

Count	1	2	3	4	5	6	7	
1	0	0	0	0	0	1	1	2
2	0	0	0	0	2	2	0	4
3	0	0	1	0	2	4	1	8
4	1	3	1	3	2	4	1	15
5	0	1	5	6	4	8	8	32
6	1	1	0	3	11	15	11	42
7	0	0	1	3	3	8	8	23
	2	5	8	15	24	42	30	126

Appendix 7

Fit Y by X Group

Contingency Analysis of F11 By F6

Contingency Table

F6 By F11

Count	3	4	5	6	7	
1	0	0	0	1	0	1
2	0	0	2	2	1	5
3	1	2	3	0	2	8
4	0	3	8	7	0	18
5	0	3	10	15	3	31
6	2	2	14	23	1	42
7	1	1	6	6	6	20
	4	11	43	54	13	125

Contingency Analysis of F11 By F7

Contingency Table

F7 By F11

Count	3	4	5	6	7	
1	0	0	0	2	2	4
2	0	0	1	0	0	1
3	3	0	4	4	0	11
4	0	2	0	6	0	8
5	0	0	11	16	1	28
6	0	6	16	16	1	39
7	1	4	12	10	9	36
	4	12	44	54	13	127

Contingency Analysis of F11 By F10

Contingency Table

F10 By F11

Count	3	4	5	6	7	
1	0	1	0	1	0	2
2	0	0	2	2	0	4
3	1	0	3	3	1	8
4	2	2	3	5	3	15
5	1	4	13	11	3	32
6	0	4	17	20	1	42
7	0	1	5	12	5	23
	4	12	43	54	13	126

Appendix 8

Fit Y by X Group

Contingency Analysis of F14 By F6

Contingency Table

F6 By F14

Count	1	2	3	4	5	6	7	
1	0	0	0	0	0	1	0	1
2	0	0	0	0	3	1	1	5
3	0	0	4	3	0	1	1	9
4	0	1	2	3	6	4	1	17
5	1	0	3	8	7	9	2	30
6	0	1	7	12	9	9	4	42
7	0	0	4	3	4	7	2	20
	1	2	20	29	29	32	11	124

Contingency Analysis of F14 By F7

Contingency Table

F7 By F14

Count	1	2	3	4	5	6	7	
1	0	0	0	2	1	1	0	4
2	0	0	0	0	1	0	0	1
3	0	1	1	3	2	4	0	11
4	0	0	0	4	1	3	0	8
5	0	0	5	5	9	6	3	28
6	0	1	8	11	8	10	2	40
7	1	0	5	5	9	9	5	34
	1	2	19	30	31	33	10	126

Contingency Analysis of F14 By F10

Contingency Table

F10 By F14

Count	1	2	3	4	5	6	7	
1	0	0	0	0	0	2	0	2
2	0	0	0	2	2	0	0	4
3	0	1	2	0	3	1	1	8
4	0	0	1	5	6	2	1	15
5	0	0	5	12	5	6	4	32
6	1	0	10	6	8	14	3	42
7	0	1	2	5	6	7	2	23
	1	2	20	30	30	32	11	126

Appendix 9

Contingency Analysis of F19 By F16

Contingency Table

F16 By F19

Count	1	2	3	4	5	6	7	
3	0	0	0	1	1	0	0	2
4	1	1	0	2	1	1	4	10
5	4	6	8	6	9	2	7	42
6	0	4	2	10	9	6	15	46
7	2	2	2	3	3	2	11	25
	7	13	12	22	23	11	37	125

Contingency Analysis of F24 By F16

Contingency Table

F16 By F24

Count	1	2	3	4	5	6	7	
3	0	0	0	0	1	1	0	2
4	1	1	3	3	0	1	1	10
5	0	4	8	9	17	6	1	45
6	0	5	4	4	14	17	2	46
7	1	0	2	7	6	4	6	26
	2	10	17	23	38	29	10	129

Contingency Analysis of F25 By F16
Contingency Table
 F16 By F25

Count	1	2	3	4	5	6	7	
3	0	0	1	0	0	0	1	2
4	0	0	0	3	1	4	1	9
5	1	1	2	5	13	13	10	45
6	0	1	5	7	6	21	7	47
7	1	3	0	0	6	5	11	26
	2	5	8	15	26	43	30	129

Appendix 10

Multivariate
Nonparametric: Spearman's Rho

Variable	by Variable	Spearman Rho	Prob> Rho
F12	F10	0,0114	0,8998
F14	F10	0,0542	0,5468
F14	F12	0,1630	0,0683
F18	F10	0,1431	0,1086
F18	F12	0,2324	0,0083
F18	F14	0,3114	0,0003
F20	F10	0,0582	0,5193
F20	F12	0,1604	0,0727
F20	F14	0,1269	0,1567
F20	F18	0,1221	0,1699
F22	F10	0,2144	0,0168
F22	F12	0,0990	0,2720
F22	F14	0,1821	0,0421
F22	F18	0,2289	0,0097
F22	F20	0,0054	0,9527
F26	F10	0,2121	0,0185
F26	F12	0,1257	0,1660
F26	F14	0,1129	0,2139
F26	F18	0,1320	0,1423
F26	F20	0,1942	0,0314
F26	F22	0,3396	0,0001

Appendix 11

Multivariate
Nonparametric: Spearman's Rho

Variable	by Variable	Spearman Rho	Prob> Rho
F17	F7	0,4465	<.0001
F26	F7	0,2262	0,0112
F26	F17	0,4871	<.0001
F28	F7	0,2452	0,0055
F28	F17	0,5424	<.0001
F28	F26	0,4773	<.0001

Appendix 12

Multivariate Nonparametric: Spearman's Rho

Variable	by Variable	Spearman Rho	Prob> Rho
F17	F14	0,1242	0,1658
F22	F14	0,1821	0,0421
F22	F17	0,3808	<.0001
F23	F14	0,2204	0,0131
F23	F17	0,2384	0,0072
F23	F22	0,3317	0,0002
F24	F14	0,0630	0,4814
F24	F17	0,1167	0,1895
F24	F22	0,3865	<.0001
F24	F23	0,2207	0,0127
F26	F14	0,1129	0,2139
F26	F17	0,4871	<.0001
F26	F22	0,3396	0,0001
F26	F23	0,1770	0,0501
F26	F24	0,0579	0,5214
F28	F14	0,1920	0,0320
F28	F17	0,5424	<.0001
F28	F22	0,3676	<.0001
F28	F23	0,3946	<.0001
F28	F24	0,2114	0,0170
F28	F26	0,4773	<.0001